PRC Environmental Management, Inc.
233 North Michigan Avenue
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PRC

October 20, 1992

Mr. William J. Bolen
Remedial Project Manager
U.S. EPA Region 5 (HSRL-6J)
6th Floor
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Summary Memorandum
Oversight of Phase I Remedial Investigation Activities
Waukegan Manufactured Gas and Coke Plant Site
Work Assignment No. C05093, Contract No. 68-W9-0006

Dear Mr. Bolen:

Enclosed are four copies of the summary memorandum for the PRC Environmental Management, Inc. (PRC), oversight of Phase I remedial investigation activities at the Waukegan Manufactured Gas and Coke Plant Site in Waukegan, Illinois. PRC oversaw activities performed during March and April 1992.

The memorandum provides an overall summary of the remedial investigation activities, oversight observations, problems, and resolutions. Attachments include the weekly field oversight summaries, sampling location figures, and a photographic log.

If you have any questions, please call me at (312) 856-8789.

Sincerely,

Rick Hersemann
Project Manager

Enclosures:

cc: Eva Howard, EPA (letter only)
Ed Schuessler, PRC (letter only)

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SUMMARY MEMORANDUM

OVERSIGHT OF PHASE I
REMEDIAL INVESTIGATION ACTIVITIES

WAUKEGAN MANUFACTURED GAS
AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

MARCH 1992 - APRIL 1992

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SUMMARY MEMORANDUM

OVERSIGHT OF PHASE I REMEDIAL INVESTIGATION ACTIVITIES

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE WAUKEGAN, ILLINOIS

MARCH 1992 - APRIL 1992

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

Work Assignment No.	:	C05093
EPA Region	:	5
Site No.	:	ILD 000 802 827
Date Prepared	:	April 30, 1992
Contract No.	:	68-W9-0006
PRC No.	:	009-C05093
Prepared by	:	PRC Environmental Management, Inc.
PRC Project Manager	:	Rick Hersemann
Telephone No.	:	312/856-8700
EPA Work Assignment Manager	:	Cindy Nolan
Telephone No.	:	312/886-0400

SUMMARY MEMORANDUM
OVERSIGHT OF PHASE I REMEDIAL INVESTIGATION ACTIVITIES
WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS
MARCH 1992 - APRIL 1992

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), conducted field oversight at the Waukegan Manufactured Gas and Coke Plant (WCP) site in Waukegan, Illinois, during March and April 1992. The objective of the oversight was to observe field activities and obtain collocated samples during Phase I Remedial Investigation (RI) activities conducted by the potentially responsible party (PRP), North Shore Gas Company, and its consultant, Barr Engineering Company (Barr). In addition, PRC's oversight was to determine whether the observed RI activities were conducted in accordance with Barr's U.S. Environmental Protection Agency (EPA)-approved work plan. RI activities included soil boring, monitoring well and piezometer installation, surface soil sampling, test trench excavation and soil sampling, ground-water sampling, and slug tests. Wisconsin Test Drill (WTD) was the subcontractor responsible for drilling soil borings and installing monitoring wells and piezometers. Kirschhoffer Excavating (Kirschhoffer) was the subcontractor responsible for excavating test trenches. Barr conducted all sampling activities, logged all test trenches and soil borings, and performed all slug tests.

The PRC project manager (PM), Rick Hersemann, and a team of PRC oversight personnel conducted continuous oversight for parts of 6 weeks during March and April 1992. Two PRC personnel were normally required for oversight because multiple RI activities were being conducted at the same time. During heavy sampling activity, three PRC personnel were needed to obtain collocated samples and ship them to the Contract Laboratory Program (CLP) laboratory. PRC was in close contact with the EPA remedial project manager (RPM), Cindy Nolan, while conducting all oversight activities.

2.0 OVERVIEW

PRC observed all field work from inside the established exclusion zone. Oversight of Phase I RI field activities at the WCP site called for Level D protective equipment for site personnel inside the exclusion zone, with a contingency for upgrading to Level C protective equipment. Barr conducted continuous air monitoring during all Phase I RI field activities. Based on the results of the air monitoring, Level C protection was not implemented. PRC personnel acquired and wore appropriate personnel protective equipment during oversight activity

and maintained a supply of equipment throughout the project as required by Barr's health and safety plan. Barr and its subcontractors were helpful in providing information and answering questions about field activities and health and safety issues.

PRC performed the following oversight activities at the WCP site:

- Oversaw drilling activities, including surface soil sampling and well installation
- Oversaw excavation of test trenches, including soil sampling
- Oversaw ground-water sampling activities
- Oversaw slug tests
- Oversaw decontamination activities
- Oversaw contractor adherence to Barr's EPA-approved work plan
- Oversaw contractor adherence to the field sampling plan
- Photographed oversight activities
- Obtained collocated soil samples from soil borings and test trenches installed during field activities according to PRC's EPA-approved quality assurance project plan (QAPjP)

During oversight of Phase I RI field activities, PRC obtained 10 percent of the collocated soil samples collected by Barr. PRC obtained 13 collocated soil samples in accordance with PRC's EPA-approved QAPjP. Collected samples were shipped to a CLP laboratory for analysis. PRC shipped nine soil samples to PACE, Inc., in Minneapolis, Minnesota, and four soil samples to Natex Gulf South Environmental Laboratory in New Orleans, Louisiana. These samples were to be analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and pesticides/polychlorinated biphenyls (PCB). PRC shipped nine soil samples to Keystone Engineering in Houston, Texas, and four soil samples to Natural Resources Laboratory in Golden, Colorado. These samples were to be analyzed for total metals and cyanide. PRC also obtained five soil samples to be analyzed for dibenzodioxins and dibenzofurans.

3.0 OBSERVATIONS

In general, Barr and its subcontractors performed field work in accordance with its EPA-approved work plan, which includes a field sampling plan, QAPjP, and health and safety plan for performing the various field activities. PRC observed several deviations from the approved work plan, but most of these variances are not expected to affect analytical data quality. Deviations were generally associated with delays, health and safety concerns, and sampling deviations.

Several delays during the project were due to field mobilization, site access agreements, health and safety concerns, and inclement weather. The start of the project was delayed for 3 days while Barr mobilized its subcontractors and field office. Several delays occurred involving access to areas occupied by workers of Outboard Marine Corporation (OMC) and Canonie Environmental, Inc. (Canonie). OMC is the current owner of the site and Canonie is OMC's contractor. OMC and Canonie expressed health and safety concerns and requested that planned work in these areas be performed on a weekend when their workers would not be present. OMC and Canonie also requested that exclusion zones established by Barr be moved to allow Canonie personnel access to the site. Small delays occurred when snow, ice, and cold temperatures caused the drill rig and backhoe used by the subcontractors to freeze up. A blow torch was used to thaw out the equipment. On one afternoon, a heavy storm with lightning caused all drilling and trenching activities to stop for safety reasons. For the most part, delays were minimal and Barr compensated for them by performing multiple tasks concurrently and by working on two weekends. Barr also mobilized a second drill rig to install monitoring wells. No delays were expected to affect data quality or overall field performance.

PRC observed one health and safety deviation during the oversight period. The deviation occurred when drilling subcontractor personnel from WTD did not wear safety glasses and ear plugs while drilling the first soil boring. PRC informed Barr of this deviation, and it was corrected immediately. Barr and its subcontractors followed the EPA-approved health and safety plan during the remainder of the oversight period.

Monitoring wells and piezometers were installed in accordance with the EPA-approved work plan. Soil cuttings from the boreholes were placed on the ground surface at each monitoring well and piezometer location, except at monitoring wells MW-4S and MW-4D. Monitoring wells MW-4S and MW-4D were located in a landscaped lawn east of OMC's east parking lot. The cuttings from these wells were drummed rather than placing them on the landscaped lawn. The drummed cuttings were taken to Barr's on-site office trailer for storage.

Purge water generated from developing the monitoring wells and piezometers was to be checked in the field with an organic vapor analyzer (OVA) and then placed on the ground next to each monitoring well and piezometer location, as specified in the EPA-approved work plan. However, during sampling of the monitoring wells, Barr deviated from the EPA-approved work plan. All purge water was collected from the monitoring wells, placed in a portable tank, and transported back to the Barr on-site office trailer, where it was placed in another tank. Approximately 200 gallons of purge water was collected. PRC informed by Barr sampling personnel that the purge water was to be disposed of on the ground at each well at the time of sampling. PRC immediately notified the EPA RPM that Barr planned to treat the purge water

with a carbon filter, field check the treated water with an OVA, and discharge the treated water on the ground next to the Barr on-site office trailer. PRC recommended to the EPA RPM that the treated purge water be discharged to trench TT-3, located just west of the Barr trailers. PRC recommended that disposal of the treated purge water in this manner would cause no additional damage to the environment, because the soils in trench TT-3 were already highly contaminated with oil and coal tar. The EPA RPM agreed with PRC's recommendation, and PRC notified Barr sampling personnel to discharge the treated purge water to trench TT-3.

Some deviations from the EPA-approved work plan occurred during soil sampling activities. The EPA-approved work plan stated that surficial soil samples would be collected from 2 to 4 feet below ground surface (bgs) with a brass-lined split spoon sampler. At collocated sample locations, the split spoon did not have enough soil for both PRC and Barr to obtain a sample. In order to have enough soil for the collocated sample, an additional split spoon was driven adjacent to the first sample location and a soil sample was collected from the same 2- to 4-foot zone. This deviation involved surficial soil samples to be analyzed for VOCs. Surficial soil samples to be analyzed for SVOCs, pesticides/PCBs, total metals, and cyanide were collected from the hollow-stem augers as they were removed from each sample location. This deviation was implemented to obtain collocated surficial soil samples only, and PRC does not believe that this deviation will affect analytical data quality.

The location of trench TT-8 was moved from the location specified in the EPA-approved work plan. The original location for trench TT-8 was an east-west trench between two Canonie trailers. This location did not provide enough room for the backhoe to excavate the trench. With the approval of the EPA RPM, the location of trench TT-8 was relocated to a north-south location just east of the original location. Trench TT-8A, an additional east-west trench not specified in the EPA-approved work plan, was also excavated just north of the Army Corps of Engineers trailer. The Army Corps of Engineers is conducting oversight of OMC's cleanup of Waukegan Harbor. PRC believes that trenches TT-8, TT-8A, and TT-10 adequately characterized the location of the former thionizer building.

While conducting oversight of ground-water sampling activities, PRC observed one sample storage protocol deviation. Sample containers with water collected from monitoring well MW-5S were placed in a cooler. A bag of ice was placed on top of the sample containers. The ice was not spread evenly next to all sample containers and the lid on the cooler could not be closed. PRC informed Barr sampling personnel that samples may not be properly cooled. Barr sampling personnel stated that the samples would be repacked with ice prior to shipment to the laboratory. PRC does not believe that the analytical data quality would be affected by the cooler not being completely closed prior to shipment to the CLP laboratory.

Appendix A provides week-by-week summaries of activities observed and performed during the oversight period. Each summary is a stand-alone document designed to facilitate quick review. The summaries describe the activities performed and discuss problems, issues, and developments that arose during the oversight period. No summaries are provided for periods during which no oversight was conducted.

Appendix B provides the following three figures: (1) Figure 1 - Background Soil Sampling Locations, (2) Figure 2 - Surficial Soil Sampling Locations, and (3) Figure 3 - Test Trench Sampling Locations. Appendix C contains 120 photographs taken during oversight of Phase I RI activities at the WCP site.

APPENDIX A
FIELD OVERSIGHT SUMMARY REPORTS

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 1

PRC Oversight Personnel: **Rick Hersemann, Kurt Whitman, Minoo Zarnegar**
Reporting Period: **March 3 - 6, 1992**

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Tuesday, March 3, 1992, to oversee Barr Engineering Company (Barr) and its subcontractors perform Phase I Remedial Investigation (RI) activities at the site. Barr's drilling subcontractor was Wisconsin Test Drill (WTD), and Barr's excavating subcontractor was Kirschhoffer Excavating (Kirschhoffer). Barr and its subcontractors began mobilization activities on March 3, 1992. Barr and its subcontractors planned to conduct the Phase I RI activities in accordance with the work plan approved by the U.S. Environmental Protection Agency (EPA). The work plan includes a field sampling plan (FSP), quality assurance project plan (QAPjP), and health and safety plan (HSP). Phase I RI activities included soil boring, monitoring well and piezometer installation, surface soil sampling, test trench excavation and soil sampling, groundwater sampling, and slug tests. The HSP required Level D protective equipment for site personnel, with a contingency for upgrading to Level C.

On March 3, 1992, the EPA Remedial Project Manager (RPM), Ms. Cindy Nolan, provided a briefing on the Waukegan Harbor project. Following the briefing, PRC accompanied the EPA RPM to select background soil sample locations on Outboard Marine Corporation (OMC) property just north of Sea Horse Drive.

Barr and its subcontractors continued mobilization on March 4, 1992. Electricity and phone lines were hooked up to Barr's on-site office trailer. At 16:00, Barr decided to excavate test trench TT-4. PRC asked Kirschhoffer if the backhoe bucket had been steam-cleaned prior to arriving on-site, as required by the EPA-approved work plan. Kirschhoffer stated that the backhoe bucket had not been steam-cleaned. Because the steam cleaner provided by WTD was not hooked up, the plans to excavate test trench TT-4 were abandoned. Barr and PRC walked the exclusion zone established in the northeast part of the site to examine test trench locations.

Kirschhoffer steam-cleaned the backhoe on the morning of March 5, 1992, and started excavating test trenches. Kirschhoffer completed test trenches TT-2 and TT-4. Barr collected soil samples from each trench. PRC obtained collocated trench soil sample WCP-TS-001 and duplicate trench soil sample WCP-TS-001D from test trench TT-2. WTD drilled background soil borings BS-1, BS-2, BS-3, BS-4, and BS-5. Barr collected soil samples from each soil boring. PRC obtained collocated surface soil sample WCP-SS-001 from soil boring BS-2, east of the water treatment plant. PRC shipped the three collocated samples at the end of the day to the Contract Laboratory Program (CLP) laboratory via Federal Express.

Kirschhoffer started excavating test trench TT-1 on March 6, 1992. Barr collected soil samples from test trench TT-1. WTD drilled surficial soil borings SS-2, SS-3, SS-4, and SS-5 on Larsen Marine's portion of the site. Barr collected surficial soil samples from each soil boring. PRC obtained collocated surficial soil sample WCP-SS-002 from soil boring SS-4. PRC shipped the collocated sample at the end of the day to a CLP laboratory via Federal Express.

Comments and Problems

The start of the project was delayed for 3 days while Barr mobilized its subcontractors and field office. OMC and Canonie Environmental, Inc. (Canonie), expressed concerns regarding access to the site. As a result, Barr moved the exclusion zone to allow Canonie access to the site. Also, Barr agreed to perform field work on weekends in the areas where OMC and Canonie workers may be present in trailers or offices.

PRC observed a health and safety deviation during this oversight period. This deviation occurred when drilling subcontractor personnel from WTD did not wear safety glasses and ear plugs while drilling the first soil boring. PRC informed Barr of this deviation, and it was corrected immediately.

PRC obtained additional collocated, surficial soil samples from soil borings BS-2 and SS-4 for dibenzodioxin and dibenzofuran analysis. EPA's Central Regional Laboratory (CRL) did not obtain a CLP laboratory for the dibenzodioxin and dibenzofuran analysis. CRL advised PRC to maintain chain of custody for these soil samples and any additional dibenzodioxin and dibenzofuran soil samples collected. Based on CRL's request, PRC maintained the samples in a locked cooler.

Other Activities

Background soil sample locations BS-6 and BS-7 were moved further north of Sea Horse Drive onto OMC property at the request of the EPA RPM. This was done to avoid possible interference from Sea Horse Drive on the background soil samples. OMC objected to the location selected. The EPA RPM continued negotiations with Barr and OMC for selection of suitable locations for background soil borings BS-6 and BS-7.

Issues and Developments

The EPA-approved work plan stated that surficial soil samples would be collected with a brass-lined split-spoon sampler from 2 to 4 feet below ground surface (bgs). On collocated soil sample locations, the split spoon did not have enough soil for both PRC and Barr to obtain a sample. In order to have enough soil for the collocated sample, an additional split spoon was driven adjacent to the first sample location and a soil sample was collected from the same 2- to 4-foot zone. This sampling technique was only for collocated, surficial soil samples to be analyzed for volatile organics compounds.

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 2

PRC Oversight Personnel: **Rick Hersemann, Keith Foszcz**
Reporting Period: **March 7 - 13, 1992**

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Saturday, March 7, 1992, to oversee Barr Engineering Company (Barr) and its subcontractors perform Phase I Remedial Investigation (RI) activities at the site. Barr's drilling subcontractor was Wisconsin Test Drill (WTD), and Barr's excavating subcontractor was Kirschhoffer Excavating (Kirschhoffer). Barr planned to collect surficial soil samples from soil boring locations in the parking lots of Outboard Marine Corporation (OMC). As requested by OMC, Barr agreed to perform the work at these locations on the weekend when OMC workers were not present.

WTD drilled surficial soil borings SS-15, SS-16, and SS-17 through OMC's south parking lot and surficial soil borings SC-01 and SC-02 through OMC's east parking lot. Barr collected soil samples from each soil boring. PRC obtained collocated surficial soil sample WCP-SS-003 from soil boring SS-17. PRC maintained custody of the sample until March 9, 1992, when the sample was shipped to a Contract Laboratory Program (CLP) laboratory. No test trenches were excavated on March 7, 1992.

Barr and its subcontractors continued RI activities on March 9, 1992. Kirschhoffer finished excavating test trench TT-1 in the northeast corner of the site. Kirschhoffer completed test trenches TT-5 and TT-6 in the area of the former railroad tie treating plant. Barr collected soil samples from each trench. PRC obtained collocated trench soil sample WCP-TS-002 from test trench TT-6. WTD started drilling piezometer P-101 on the Larsen Marine portion of the site. PRC shipped two collocated samples at the end of the day to a CLP laboratory via Federal Express.

Kirschhoffer excavated test trenches TT-3 and TT-5E on March 10, 1992. Test trench TT-5E was excavated perpendicular to test trench TT-5 to determine the eastward extent of soil contamination observed in test trench TT-5. Barr collected soil samples from each trench. PRC obtained collocated trench soil sample WCP-TS-003 from test trench TT-3. WTD completed piezometer P-101 and soil borings SS-1 and SS-7. Barr collected surficial soil samples from each soil boring. PRC shipped one collocated sample at the end of the day to a CLP laboratory via Federal Express.

Kirschhoffer completed excavating test trench TT-3 on March 11, 1992. Kirschhoffer also excavated test trenches TT-00A, TT-00B, and TT-9. Barr collected soil samples from each trench. Test trenches were excavated in the northeast part of the site where a former General Motors Corporation (GM) tar pit was located. WTD drilled surficial soil borings SS-6, SS-8, SS-9, SS-10, SS-11, and SS-12. Barr collected soil samples from each soil boring. PRC obtained collocated surficial soil sample WCP-SS-004 from soil boring SS-8 and collocated surficial soil sample WCP-SS-005 from soil boring SS-10. PRC shipped the collocated samples at the end of the day to a CLP laboratory via Federal Express.

Kirschhoffer excavated test trenches TT-16, TT-17, TT-22 and TT-22N on March 12, 1992. Test trench TT-22N was excavated perpendicular to test trench TT-22 to determine the

northward extent of soil contamination observed in test trench TT-22. Barr collected soil samples from each test trench. WTD drilled surficial soil borings SS-13 and SS-14. Barr collected soil samples from each soil boring. WTD completed piezometers P-102 and P-104 and started drilling piezometer P-103.

Kirschhoffer excavated test trench TT-3W on March 13, 1992. Test trench TT-3W was excavated perpendicular to test trench TT-3 to determine the westward extent of soil contamination observed in test trench TT-3. Barr collected soil samples from test trench TT-3W. WTD completed piezometer P-103.

Comments and Problems

Weather conditions and equipment breakdowns caused several minor delays in the project. On March 9, 1992, a severe thunderstorm with lightning and hail caused all drilling and excavating activities to stop for safety reasons. On March 10, 1992, freezing rain, snow, and cold temperatures caused the drill rig and backhoe to freeze. The project was delayed several hours while the drill rig and backhoe were thawed out with blow torches. On March 11, 1992, Kirschhoffer broke an axle on the backhoe bucket while excavating rubble in test trench TT-9. The broken axle occurred at the end of the day and was repaired by the morning of March 12, 1992.

Cold temperatures encountered during this oversight period caused health and safety concerns. As described in the health and safety plan approved by the U.S. Environmental Protection Agency (EPA), personnel involved in the RI activities took measures to protect against cold stress. Extra layers of clothes were worn under the Tyvek® suits, and work periods were limited to reduce exposure.

Other Activities

The EPA Remedial Project Manager (RPM) continued negotiations with Barr and OMC for the selection of suitable locations for background soil borings BS-6 and BS-7. Barr also continued negotiations with OMC and Canonie Environmental, Inc. (Canonie), for access to areas occupied by OMC and Canonie trailers.

Issues and Developments

Former concrete building foundations and large pieces of concrete rubble were encountered in many of the test trenches. After consulting with the EPA RPM, it was agreed that the former concrete building foundations would not be removed if encountered in a test trench. Test trenches would be excavated and if former concrete building foundations were encountered, excavating the test trench would stop and excavation would be completed on the other side of the foundation.

During test trench excavation, the water table was encountered 3 to 5 feet below ground surface. As the test trenches were excavated, ground water would seep into the bottom of the trench. To keep back the water, a small dam of soil was placed at the bottom of the trench. A dam was placed every 10 to 20 feet to keep back the ground water. Excavating the test trenches in sections allowed observation and characterization of the soils in the test trench side walls.

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 3

PRC Oversight Personnel: **Rick Hersemann, Scott Lloyd, Scott Storlid**
Reporting Period: **March 14 - 20**

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Monday, March 16, 1992, to oversee Barr Engineering Company (Barr) and its subcontractors perform Phase I Remedial Investigation (RI) activities at the site. Barr's drilling subcontractor was Wisconsin Test Drill (WTD), and Barr's excavating subcontractor was Kirschhoffer Excavating (Kirschhoffer). Barr and its subcontractors planned to continue test trench excavations and install monitoring wells. Kirschhoffer excavated test trenches TT-13, TT-20, and TT-21. Barr collected soil samples from each test trench. WTD completed monitoring well MW-3S.

Kirschhoffer excavated test trenches TT-15, TT-18, TT-19, and TT-19W on March 17, 1992. Test trench TT-19W was excavated perpendicular to test trench TT-19 to determine the westward extent of soil contamination observed in test trench TT-19. Barr collected soil samples from each test trench. PRC obtained collocated trench soil samples WCP-TS-004 and WCP-TS-004D from test trench TT-19. WTD drilled a deep pilot boring to bedrock next to monitoring well MW-3S. The Illinois Environmental Protection Agency (IEPA) Remedial Project Manager (RPM), Tracy Fitzgerald, arrived at the site to observe excavation of test trenches. PRC shipped the collocated samples at the end of the day to a Contract Laboratory Program (CLP) laboratory via Federal Express.

Kirschhoffer excavated test trenches TT-11, TT-12, and TT-14 on March 18, 1992. Barr collected soil samples from each test trench. PRC obtained collocated trench soil sample WCP-TS-005 from test trench TT-12. WTD completed monitoring well MW-3D. PRC shipped one collocated sample at the end of the day to a CLP laboratory via Federal Express.

Kirschhoffer excavated test trenches TT-7 and TT-23 on March 19, 1992. Barr collected soil samples from each test trench. PRC oversaw WTD installing monitoring well MW-4S to determine whether the well was installed according to the work plan specifications approved by the U.S. Environmental Protection Agency (EPA). PRC observed that monitoring well MW-4S was installed according to the specifications in the EPA-approved work plan. WTD mobilized a second drill rig to install monitoring wells.

Kirschoffer extended test trenches TT-19W and TT-15 on March 20, 1992, to further define the extent of soil contamination observed in those trenches. Kirschhoffer also excavated an unnamed trench that extended from test trench TT-19W south to the Outboard Marine Corporation (OMC) fence. Kirschhoffer also excavated two unnamed test trenches west of test trenches TT-3W and TT-7 to further define the extent of soil contamination observed in the area. WTD completed monitoring wells MW-4D and MW-5S.

Comments and Problems

Cold temperatures continued during this oversight period, causing health and safety concerns. As described in the EPA-approved health and safety plan, on-site personnel took measures to protect

against cold stress. Extra layers of clothes were worn under the Tyvek® suits, and work periods were limited to reduce exposure.

PRC obtained additional collocated trench soil samples from test trenches TT-12 and TT-19 for dibenzodioxin and dibenzofuran analysis. EPA's Central Regional Laboratory (CRL) did not obtain a CLP laboratory for the dibenzodioxin and dibenzofuran analysis. CRL advised PRC to maintain chain of custody for these soil samples, along with samples previously collected from soil borings BS-2 and SS-4. Based on CRL's request, PRC maintained the samples in a locked cooler.

During the excavation of test trench TT-14, PRC detected strong coal tar and oil odors. Barr detected a reading of 46 parts per million (ppm) inside the backhoe bucket with the organic vapor meter (OVM). However, in the breathing zone, the OVM detected a reading of 3 ppm. Barr's health and safety personnel determined that upgrading to level C was not required since the 5 ppm level specified in the EPA-approved work plan was not exceeded.

Other Activities

The EPA RPM continued negotiations with Barr and OMC for the selection of suitable locations for background soil borings BS-6 and BS-7. An agreement was made between Barr, OMC, and Canonie Environmental, Inc. (Canonie), for access to the areas occupied by OMC and Canonie trailers. Barr agreed to excavate the proposed test trenches in this area on Saturday, March 21, 1992, when OMC and Canonie employees would not be present. Barr proposed to move the locations of several proposed trenches so that trailers would not have to be moved. The revised test trench locations were approved by the EPA RPM. The revised test trench locations were proposed to characterize the location of the former thionizer building.

Issues and Developments

The EPA-approved work plan stated that during monitoring well and piezometer installation, excess soil cuttings from the borehole were to be spread on the ground surface around each piezometer or monitoring well location. However, the excess soil cuttings from monitoring wells MW-4S and MW-4D were drummed and taken to Barr's on-site office for storage. This deviation from the EPA-approved work plan was done for cosmetic reasons and did not appear to be a problem to PRC. Monitoring wells MW-4S and MW-4D are located in a landscaped lawn east of OMC's east parking lot. Barr stated that disposal options for the soil cuttings would be determined at a future date. Barr also stated that the decontamination water being stored in a drum at the Barr office trailer would be analyzed, and the disposal options would be evaluated.

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 4

PRC Oversight Personnel: **Rick Hersemann**
Reporting Period: **March 21 - 27**

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Saturday, March 21, 1992, to oversee Barr Engineering Company (Barr) and its subcontractors perform Phase I Remedial Investigation (RI) activities at the site. Barr's drilling subcontractor was Wisconsin Test Drill (WTD), and Barr's excavating subcontractor was Kirschhoffer Excavating (Kirschhoffer). Barr planned to excavate test trenches in the area of the Outboard Marine Corporation (OMC) and Canonie Environmental, Inc. (Canonie), trailers. As requested by OMC and Canonie, Barr agreed to excavate the trenches when OMC and Canonie workers were not present.

Kirschhoffer excavated test trenches TT-8, TT-8A, and TT-10 next to the trailers. Barr collected soil samples from each test trench. PRC obtained collocated trench soil sample WCP-TS-006 from test trench TT-8A. PRC shipped one collocated sample at the end of the day to a Contract Laboratory Program (CLP) laboratory via Federal Express.

Comments and Problems

Access to test trenches TT-8, TT-8A, and TT-10 was limited by the close location of the trailers. The proposed trench locations were moved by Barr with the approval of the U.S. Environmental Protection Agency (EPA) Remedial Project Manager (RPM). Test trench TT-8 was originally proposed to be an east-west trench located between two Canonie trailers. This location did not provide enough room for the backhoe to excavate the test trench. The location of test trench TT-8 was relocated to a north-south location just east of the original location. Test trench TT-8A, an additional east-west trench, was also excavated just north of the Army Corps of Engineers trailer. The test trenches were excavated to characterize the location of the former thionizer building.

Cold temperatures continued during this oversight period, causing health and safety concerns. Extra layers of clothes were worn under Tyvek® suits to protect against cold stress. A heavy snow storm started while Kirschhoffer was excavating test trench TT-8A. All trenches were backfilled before visibility became limited by the snow.

Other Activities

No other activities were conducted.

Issues and Developments

All test trench activities were completed on March 21, 1992. Kirschhoffer scheduled a larger backhoe for March 23, 1992, to tamp down the mounds of soil on the test trenches. WTD planned to complete monitoring wells MW-5D, MW-6S, and MW-6D and background soil borings BS-6, BS-7, and BS-8 on March 23, 1992. The EPA RPM informed PRC that oversight of these RI activities was not required.

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 5

PRC Oversight Personnel: Peter Lynch
Reporting Period: April 6 - 10, 1992

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Wednesday, April 8, 1992, to oversee Barr Engineering Company (Barr) perform field work at the site. Barr has been retained by the North Shore Gas Company to conduct Phase I Remedial Investigation (RI) activities at the site.

During the week, one field activity was conducted. Barr collected ground-water samples from eight site monitoring wells (MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D). Ground-water samples were collected for the analysis of volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides, polychlorinated biphenyls (PCBs), metals, and cyanide.

All monitoring well levels were recorded before and after ground-water sampling. Monitoring wells were then purged using a pump. Three well volumes were purged before ground water was tested for specific conductance, temperature, and pH. Two additional well volumes and testings would be used to document stabilization at ground-water conditions for sampling. Purge water was collected at each monitoring well location in a plastic holding tank. Barr stated that purge water would be treated on site in a portable, granular activated carbon unit. Influent and effluent purge-water samples would be collected for VOC, SVOC, pesticide, PCB, metals, and cyanide analysis. Barr stated that effluent purge water would be discharged to the ground surface at the site. Barr's method for treating and discharging purge water was not in the U.S. Environmental Protection Agency (EPA)-approved work plan.

Barr began ground-water sampling at 1215. Barr used a laboratory-cleaned stainless-steel bailer with a Teflon® check-valve to collect ground water. Ground water for VOC analysis was collected in three 40-milliliter vials. SVOC samples were collected in 2.5-liter (L) amber jars. Ground water collected for metals analysis was collected in a polyethylene transfer bottle, before being filtered and transferred to a 1-L polyethylene bottle preserved with nitric acid. Ground water collected for cyanide analysis was collected in one 0.5-gallon polyethylene bottle preserved with sodium hydroxide. All ground-water samples were placed on ice immediately after sampling.

Ground-water sampling began at monitoring well MW-5S. Barr reported static water levels at 7.35 feet below the top of the well casing. Additional volume was collected at this location for matrix spike/matrix spike duplicate (MS/MSD) laboratory quality control samples. PRC noted a brown to yellow color of ground water from monitoring well MW-5S. Ground-water sampling at MW-5D began at 1315. Barr reported static water levels at 7.94 feet below the top of the well. PRC noted that ground water from this location appeared yellow and clear. All ground-water samples were placed on ice immediately after sampling.

At 1330 Barr returned to the trailer area to begin transferring purge water to a stationary plastic holding tank. Barr stated that after all monitoring wells were sampled, purge water would be treated in a granular activated carbon unit and discharged to the ground surface at the site. PRC stated that purge water should be sampled before and after treatment and analyzed before it is discharged to the ground surface. Barr proposed that purge water be discharged to the ground surface if it appeared clear and an organic vapor monitor (OVM) did not detect any contaminants. Purge water would also be sampled for analysis of VOC, SVOC, pesticides, PCBs,

metals, and cyanides. PRC requested that Barr hold purge water until further instruction from the U.S. Environmental Protection Agency (EPA) Barr concurred with this request.

At 1500, Barr continued sampling at monitoring wells MW-6S and MW-6D. Water level was reported to be about 7.5 feet below the top of well casings. PRC noted that ground water from monitoring well MW-6S appeared cloudy and brown. Purge water from monitoring wells MW-6S and MW-6D was containerized for on-site treatment using granular activated carbon units.

Comments and Problems

At monitoring wells MW-5S and MW-5D, PRC noted that ground-water samples did not appear to be adequately cooled with ice. Ice was not in contact with all sample containers, and the sample cooler was not completely closed. This situation was brought to Barr's attention, and it was immediately rectified.

Other Activities

No other activities were conducted.

Issues and Developments

Barr informed PRC that purge water from site monitoring wells would be treated on site using granular activated carbon units. The purge water would be discharged to the ground surface before effluent purge water analysis is received. PRC requested that purge water be contained until further instruction by EPA. Barr concurred with this request.

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

FIELD OVERSIGHT SUMMARY NO. 6

PRC Oversight Personnel: **Peter Lynch**
Reporting Period: **April 13 - 17, 1992**

Site Activities

PRC Environmental Management, Inc. (PRC), arrived at the Waukegan Manufactured Gas and Coke Plant (WCP) site on Wednesday, April 15, 1992, to oversee Barr Engineering Company (Barr) perform field work at the site. Barr has been retained by the North Shore Gas Company to conduct Phase I Remedial Investigation (RI) activities at the site.

During the week, one field activity was conducted. Barr conducted slug tests on eight site ground-water monitoring wells (MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D). The slug tests were performed to more accurately determine aquifer characteristics at the site.

PRC observed slug tests at monitoring wells MW-3S and MW-3D. Water level was determined by lowering an electronic water level indicator into the well casing until ground water was encountered. Barr then lowered an In-Situ® pressure transducer into the ground water until about 9 feet of water was above it. The pressure transducer was then connected to the In-Situ® Hermit Environmental Data Logger (Hermit). The 9-foot depth was maintained by taping the pressure transducer cable to the well casing. Static water level at MW-3S was recorded at 5.49 feet below top of well casing. A 5-foot solid polyvinyl chloride (PVC) slug was lowered into the ground water and the disturbed ground water was allowed to equilibrate.

The slug test at monitoring well MW-3S began at 1330. When water levels monitored on the Hermit indicated the ground water had equilibrated, the PVC slug was rapidly withdrawn from the monitoring well to begin the slug test. Barr stated that this slug test is called a "Rise-Out" slug test, or rising head slug test. Barr further stated that falling head slug tests will not be performed at monitoring well MW-3S due to the shallow water table level. Barr stated that the Hermit will the record rate of water level change over time using a logarithmic scale to record water level changes early in the slug test. The slug test at monitoring well MW-3S concluded at 1340 when ground-water levels returned to pre-slug test levels.

PRC noted that Barr conducted between two and four slug tests at each monitoring well. Barr stated that additional slug tests were performed to collect additional data.

PRC noted that Barr decontaminated all slug test equipment between monitoring well locations.

At 1400, Barr recorded ground-water levels in monitoring well MW-3D at 5.53 feet below the top of well casing. The rising head slug test began at 1410. Barr stated that both rising head and falling head slug tests would be performed at this location. The rising head slug test ended at 1420, and after water level equilibration, Barr began the falling head slug test, at 1422. The PVC slug was allowed to drop into the ground water, causing a rise in the water table. Recovery data was recorded by a pressure transducer located near the monitoring well screen and electronically connected to a Hermit unit.

At 1425, Barr rechecked ground-water levels at monitoring well MW-3S. Barr stated that an electronic water level indicator would be lowered and secured to a depth immediately above the water level. Ground-water movement caused by slug test activities at MW-3D should sound the water level indicator, indicating changes in water levels at monitoring well MW-3S. The rising

head slug test at MW-3D began at 1433, and the electronic water level indicator sounded at monitoring well MW-3S.

Comments and Problems

Barr stated that due to shallow water levels, only rising head slug tests will be conducted at shallow site monitoring wells. Rising and falling head slug tests will be performed at all deep site monitoring wells.

PRC noted that while on site, Barr performed work activities using appropriate personal protective equipment. This includes hard hat, safety glasses, steel-toed boots, protective boot covers, and latex gloves.

PRC observed that all waste decontamination water was discharged to the ground surface surrounding each respective monitoring well, according to the U.S. Environmental Protection Agency (EPA)-approved work plan.

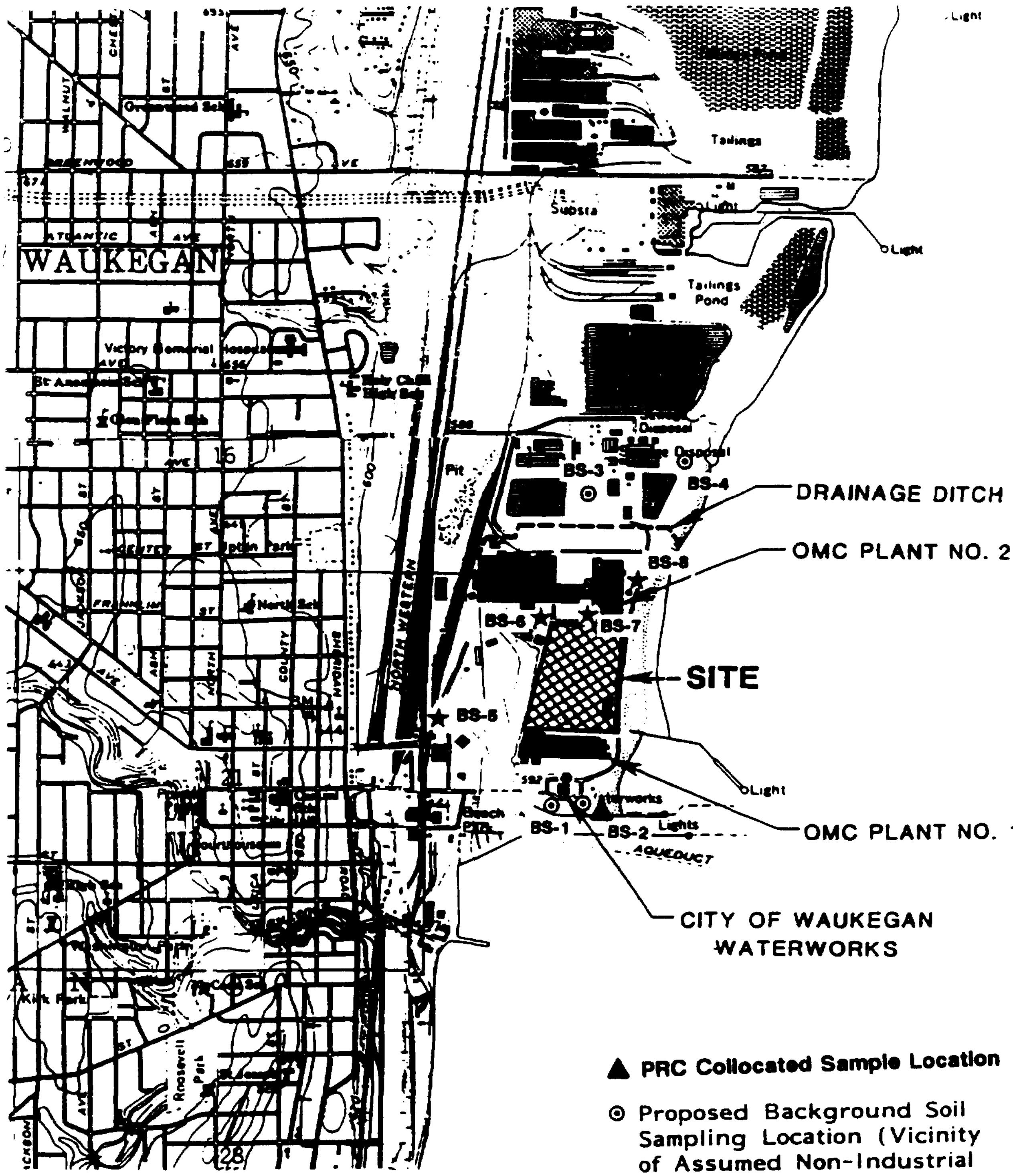
Other Activities

Barr subcontractors were on site to survey trench, piezometer, and monitoring well locations.

Issues and Developments

No issues or developments arose.

APPENDIX B
FIELD OVERSIGHT SAMPLING LOCATIONS



▲ PRC Collocated Sample Location

⊙ Proposed Background Soil Sampling Location (Vicinity of Assumed Non-Industrial Operations)

★ Proposed Background Soil Sampling Location (Vicinity of Known Industrial Operations

1000' 0 1000' 2000' 3000'

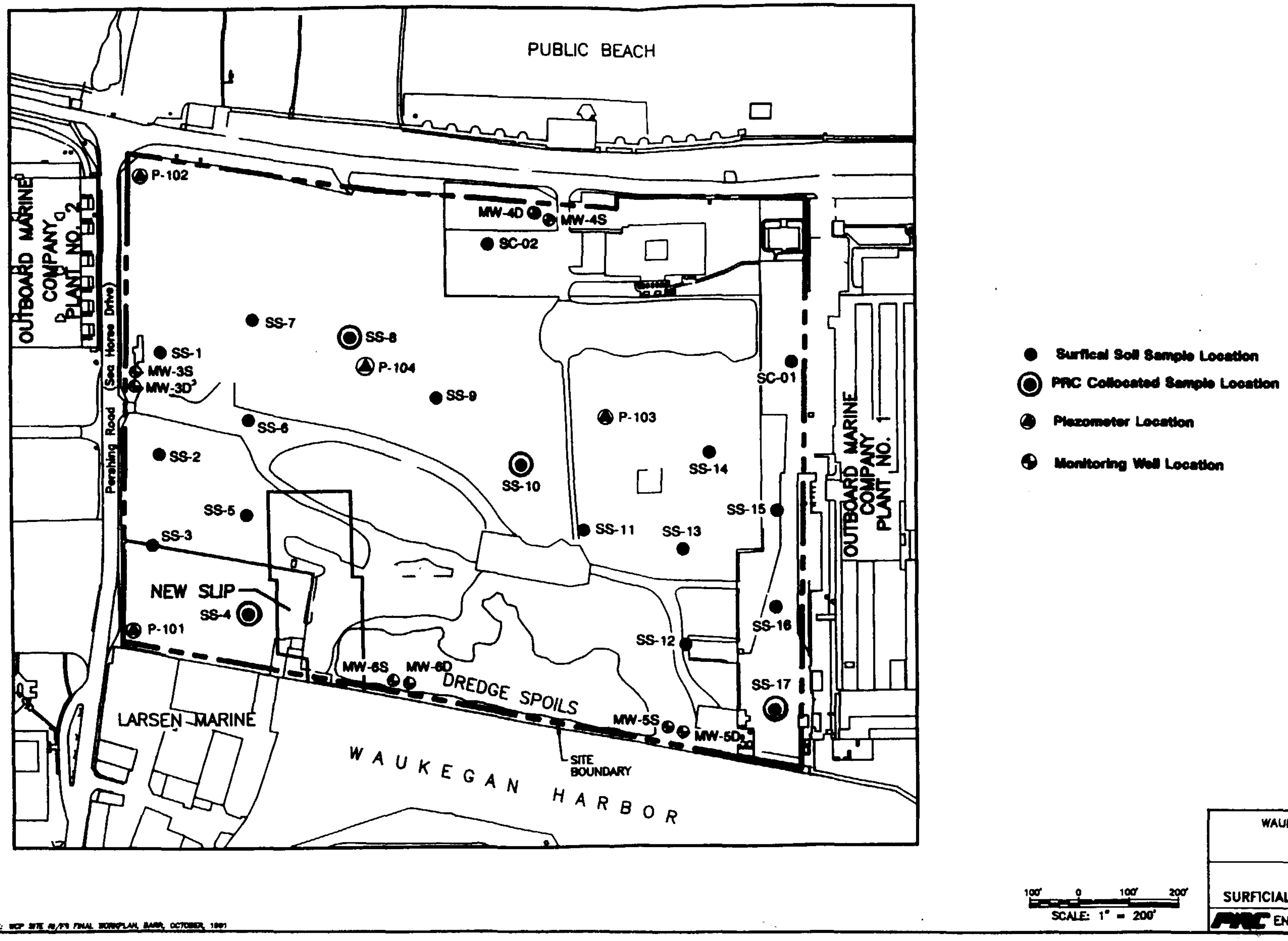
SCALE: 1" = 2000'

WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

FIGURE 1
BACKGROUND SOIL SAMPLING LOCATIONS

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: WCP SITE RI/FS FINAL WORK PLAN, BARR, OCTOBER 1991

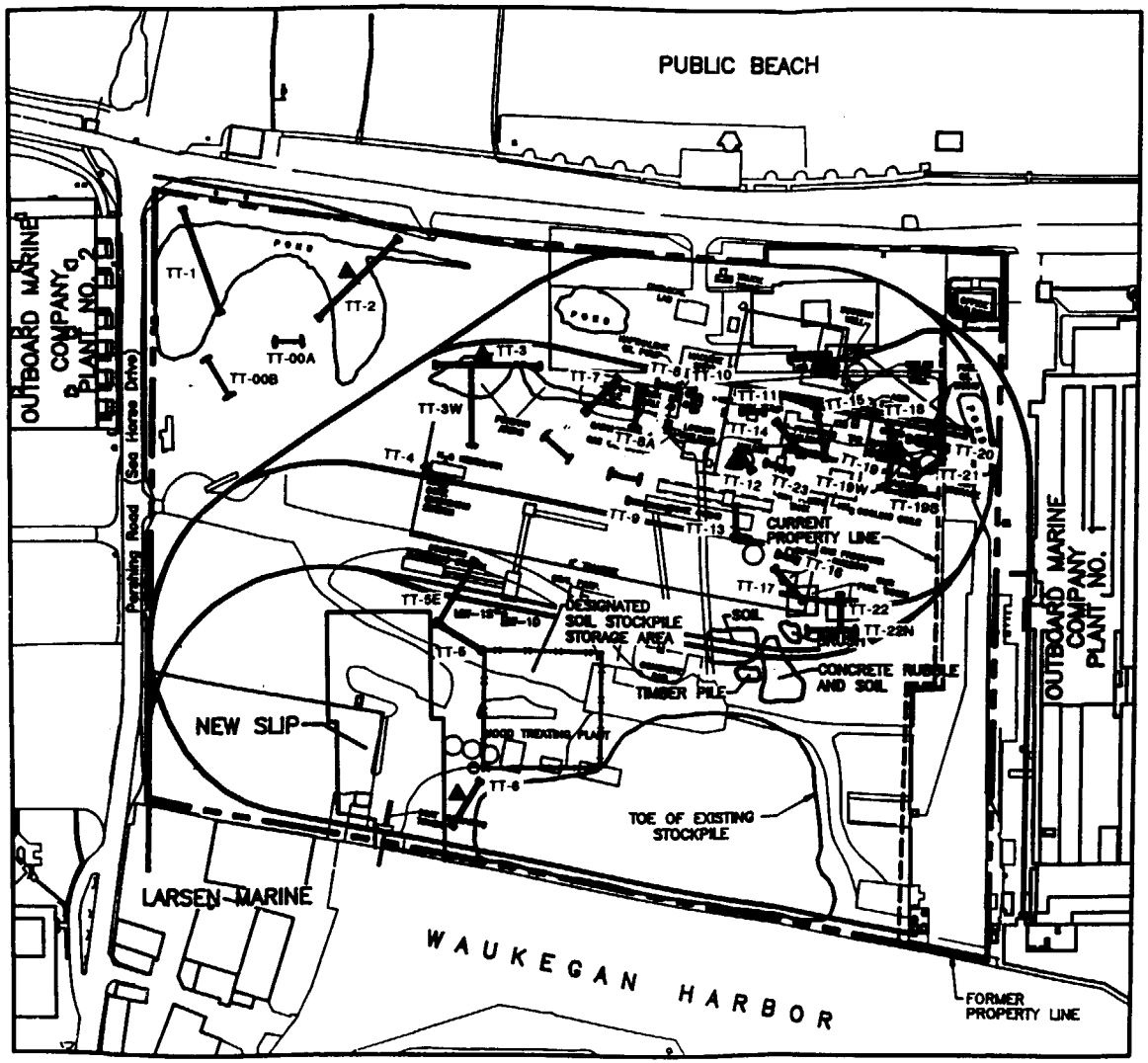


SOURCE: WCP SITE RI/FS FINAL WORKPLAN, BARR, OCTOBER, 1991

WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

FIGURE 2
SURFICIAL SOIL SAMPLING LOCATIONS

PRC ENVIRONMENTAL MANAGEMENT, INC.



Test Trench Location

PRC Collocated Sample Location

100' 0 100' 200'
SCALE: 1" = 200'

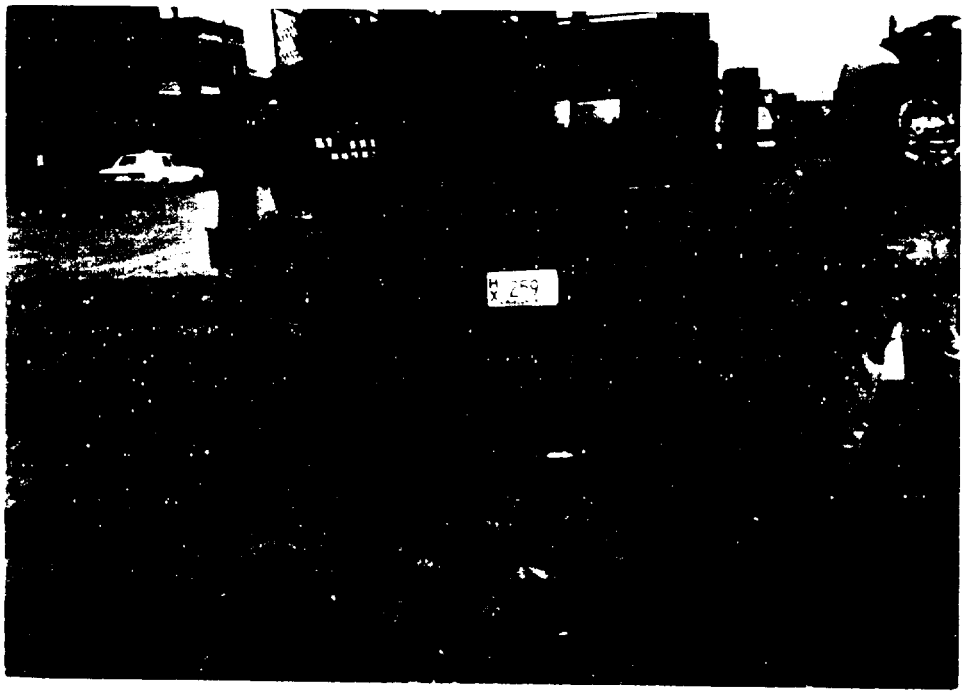
SOURCE: WCP SITE RI/FS FINAL WORKPLAN, BARR, OCTOBER, 1991

WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

FIGURE 3
TEST TRENCH SOIL SAMPLING LOCATIONS

PRC ENVIRONMENTAL MANAGEMENT, INC.

APPENDIX C
PHOTOGRAPHIC LOG

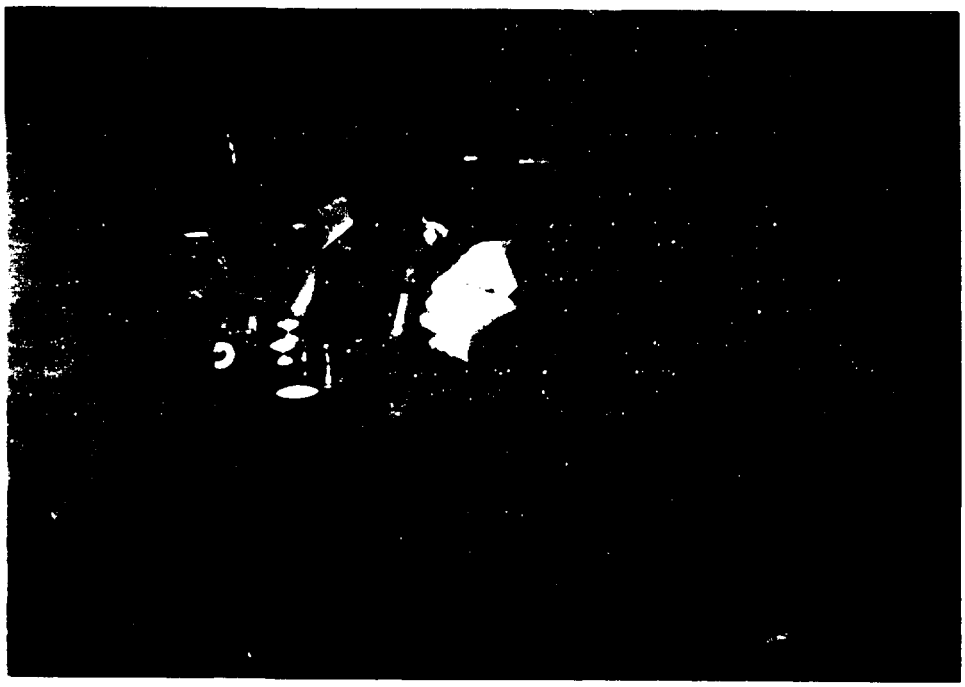


Photograph No. 1 Date: 03/05/92
Location: Boring BS-2 Time: 1002
Description: Drilling 0 to 2 feet below ground surface (bgs) in BS-2, east of Water Treatment Plant

Photograph No. 2 Date: 03/05/92
Location: Boring BS-2 Time: 1004
Description: Drillers assembling split spoon for 2- to 4-foot sample

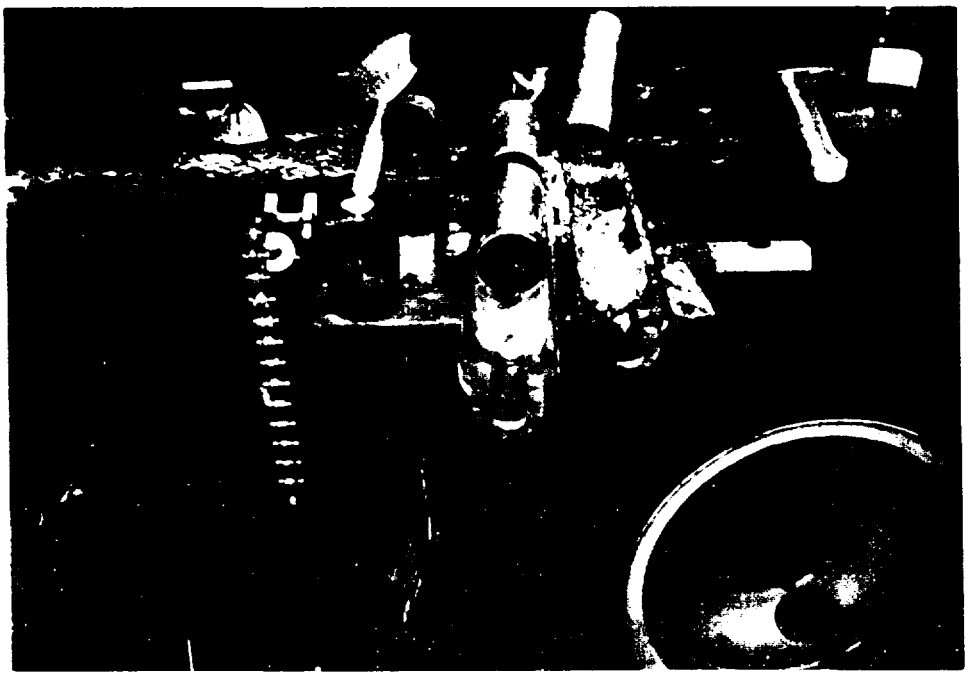
Photograph No. 3
Location: Boring BS-2
Description: Drilling split spoon for 2- to 4-foot sample

Date: 03/05/92
Time: 1004



Photograph No. 4
Location: Boring BS-2
Description: Collecting VOC sample for collocated sample WCP-SS-001

Date: 03/05/92
Time: 1005

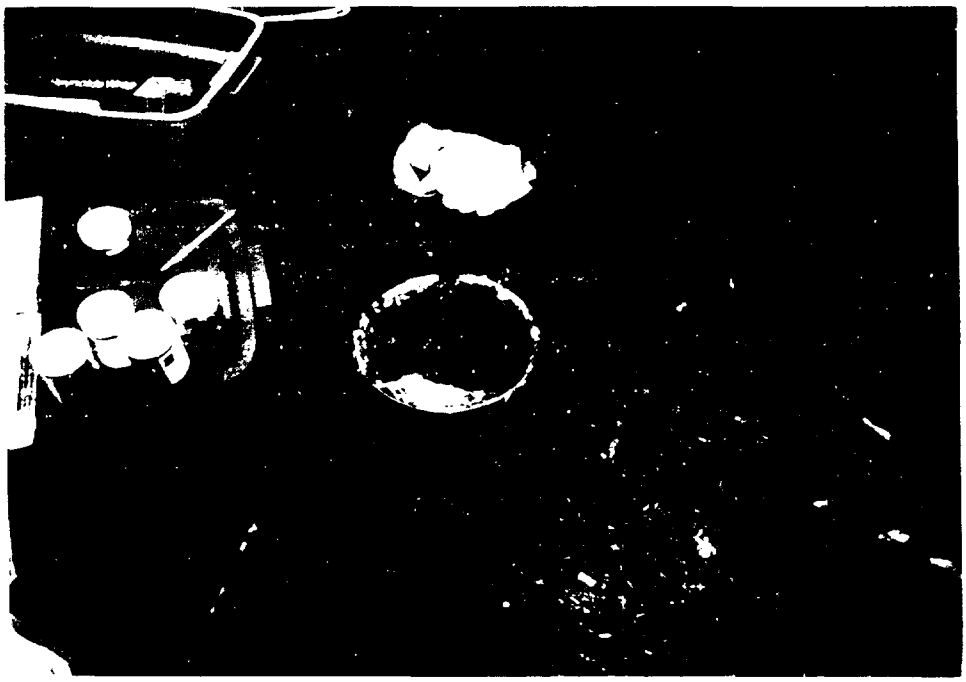


Photograph No. 5
Location: Boring BS-2
Description: VOC sample for collocated sample WCP-SS-001

Date: 03/05/92
Time: 1005

Photograph No. 6
Location: Boring BS-2
Description: Drilling to collect soil for colliocated sample WCP-SS-001

Date: 03/05/92
Time: 1019



Photograph No. 7
Location: Boring BS-2
Description: Collecting soil for collocated sample WCP-SS-001

Date: 03/05/92
Time: 1022

Photograph No. 8
Location: Boring BS-3
Description: Split-spoon sample from 2- to 4-foot depth

Date: 03/05/92
Time: 1136

Photograph No. 9
Location: Boring BS-4
Description: Drilling BS-4 east of Wastewater Treatment Plant

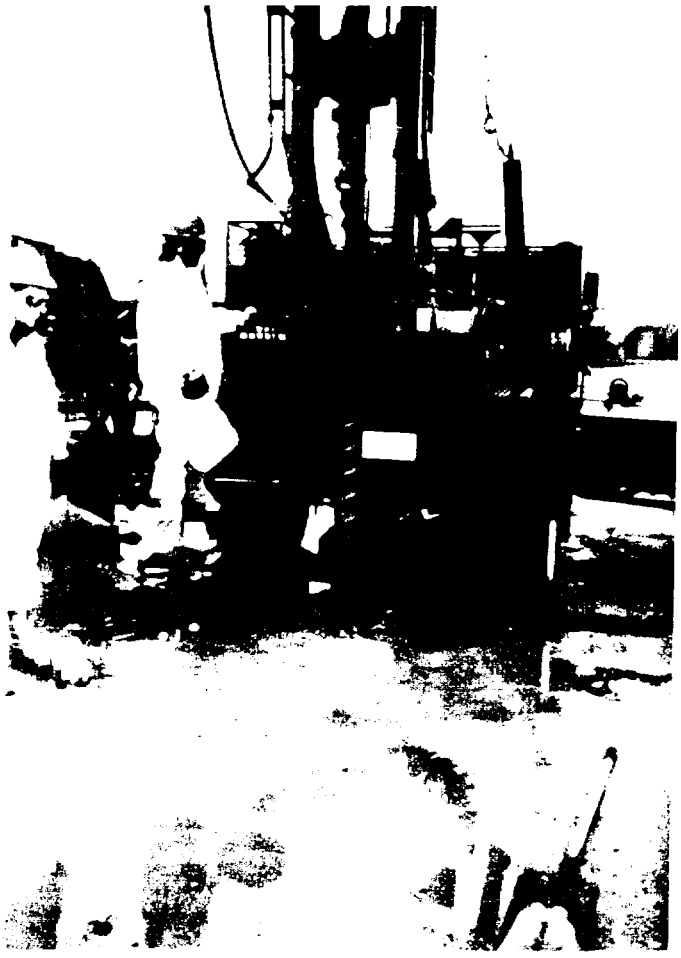
Date: 03/05/92
Time: 1220

Photograph No. 10
Location: Boring BS-4
Description: Split-spoon sample from 2- to 4-foot depth

Date: 03/05/92
Time: 1238

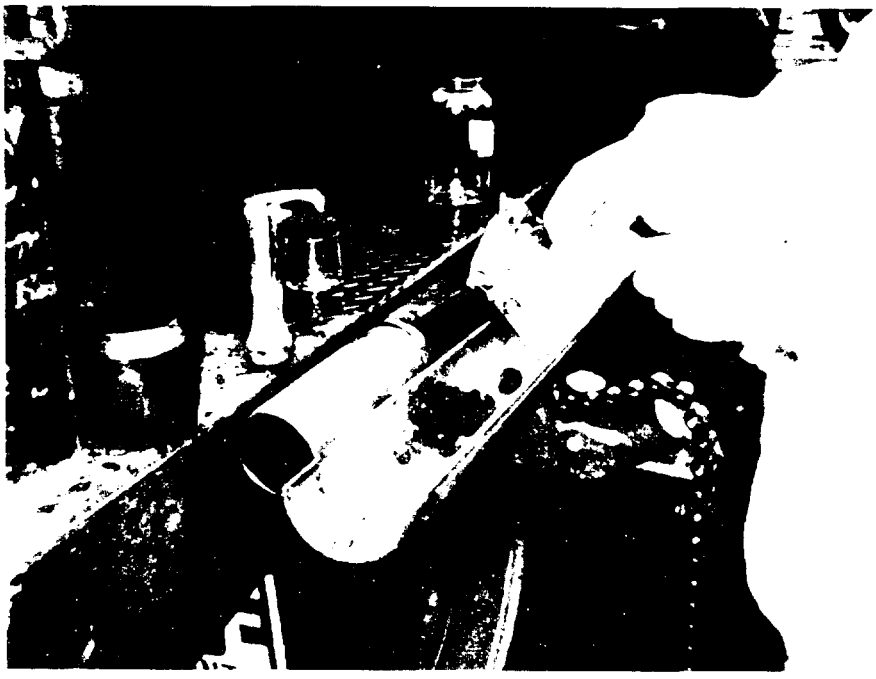
Photograph No. 11
Location: Boring BS-5
Description: Drilling BS-5 east of railroad tracks

Date: 03/05/92
Time: 1525



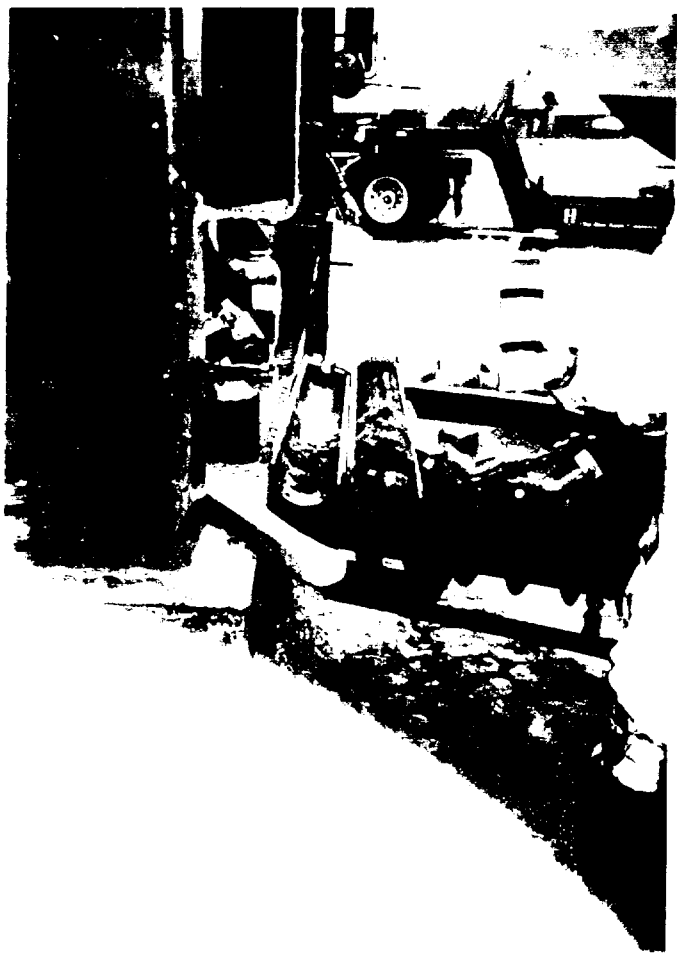
Photograph No. 12
Location: Boring SS-4
Description: Drilling boring SS-4 north of new slip at Larsen Marine

Date: 03/06/92
Time: 0950



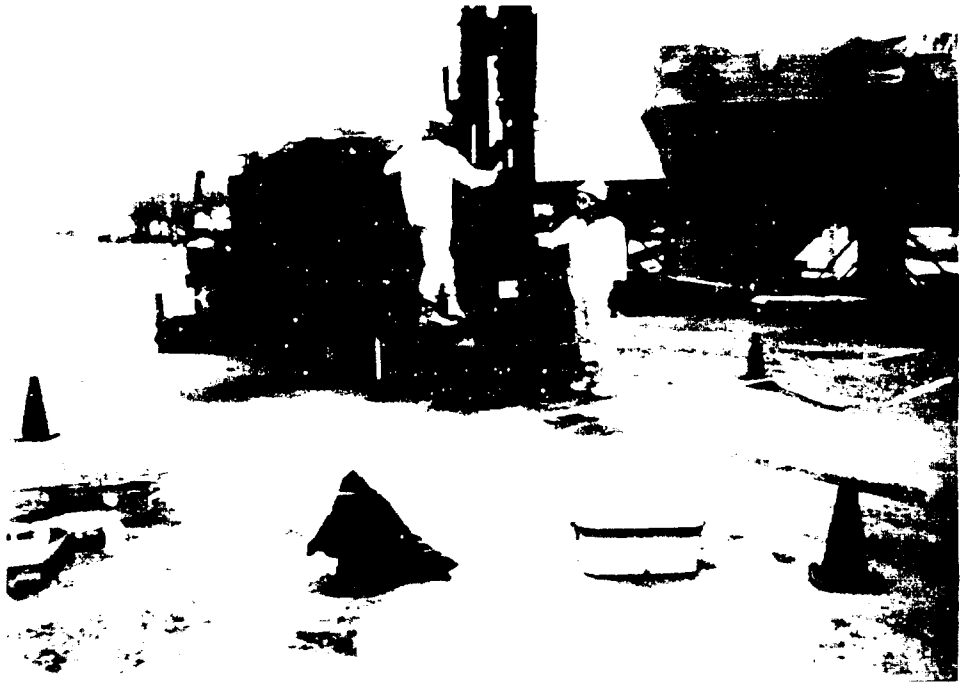
Photograph No. 13
Location: Boring SS-4
Description: Collecting sample for collocated sample WCP-SS-02

Date: 03/06/92
Time: 1001



Photograph No. 14
Location: Boring SS-4
Description: Collecting sample for collocated sample WCP-SS-02

Date: 03/06/92
Time: 1030



Photograph No. 15
Location: Boring SS-5
Description: Drilling SS-5 at Larsen Marine

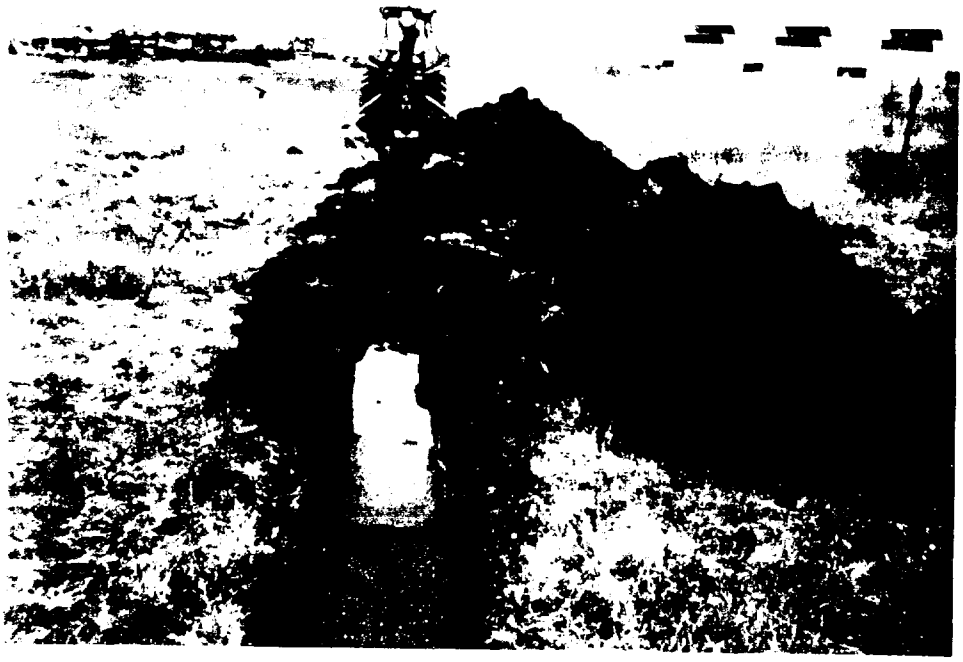
Date: 03/06/92
Time: 1136

Photograph No. 16
Location: Boring SS-5
Description: Steam-cleaning augers at SS-5

Date: 03/06/92
Time: 1151

Photograph No. 17
Location: Trench TT-2
Description: Black fill material at east end of trench TT-2

Date: 03/05/92
Time: 1031



Photograph No. 18
Location: Trench TT-2 looking northwest
Description: Photograph shows water table at 3 feet in trench TT-2.

Date: 03/05/92
Time: 1032

Photograph No. 19 Date: 03/05/92
Location: Trench TT-2, looking east Time: 1215
Description: Sample location of collocated sample WCP-TS-001 and duplicate WCP-TS-001D; black sand with gravel

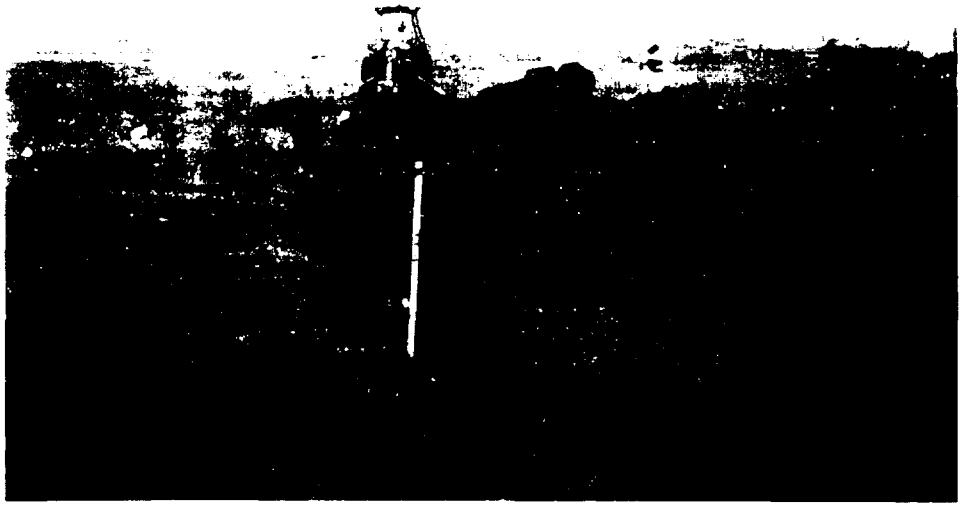
Photograph No. 20 Date: 03/05/92
Location: Trench TT-4 Time: 1600
Description: Brown sand layer at 4 feet with oil sheen on water table

Photograph No. 21
Location: Trench TT-4, looking northeast
Description: Black clay and sand fill material from trench TT-4

Date: 03/05/92
Time: 1630

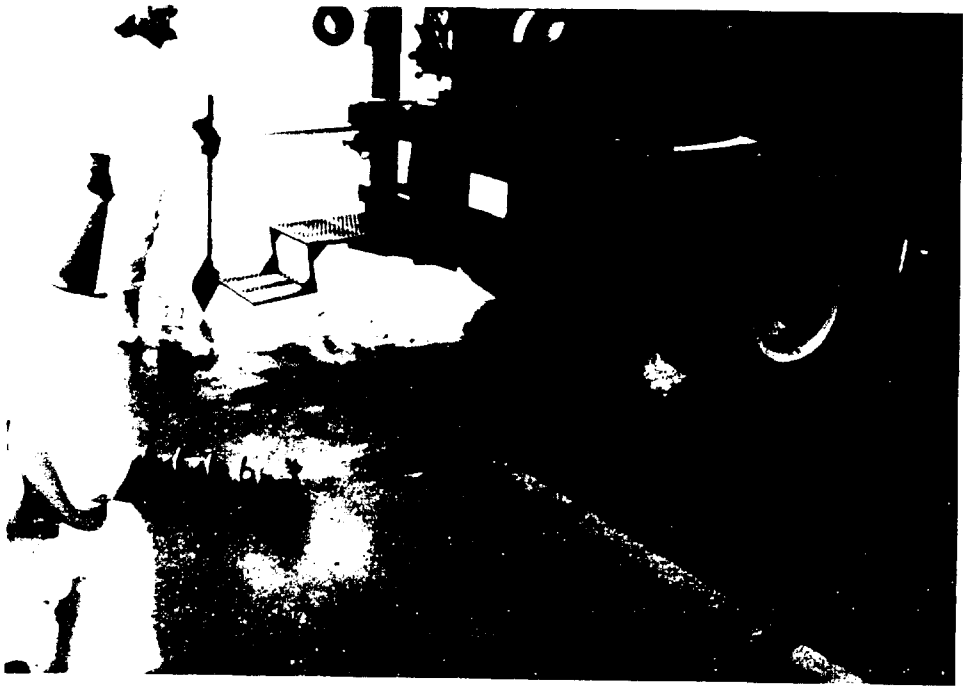
Photograph No. 22
Location: Trench TT-1
Description: Black chunks of coal tar in brown sand at 2 to 3 feet

Date: 03/06/92
Time: 1145



Photograph No. 23
Location: Trench TT-1, looking west
Description: Fill material and concrete debris in trench TT-2

Date: 03/06/92
Time: 1147



Photograph No. 24
Location: Boring SS-17
Description: Collocated sample location WCP-SS-03 in OMC south parking lot

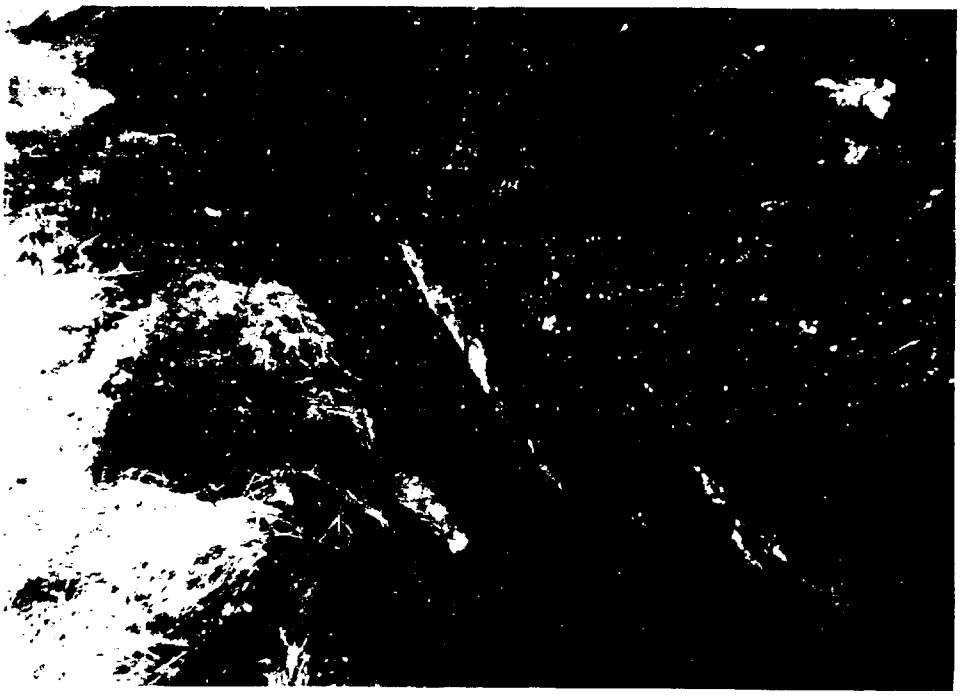
Date: 03/07/92
Time: 1000

Photograph No. 25
Location: Boring SS-16
Description: Drilling through OMC south parking lot at SS-16

Date: 03/07/92
Time: 1020

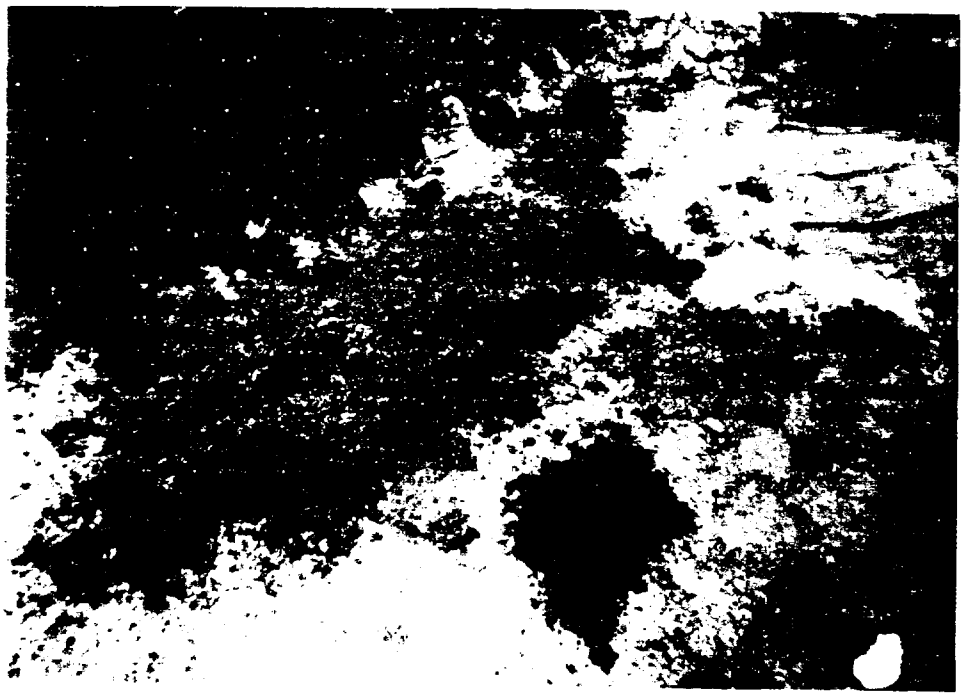
Photograph No. 26
Location: Boring SC-02
Description: Drilling through OMC east parking lot at SC-02

Date: 03/07/92
Time: 1305



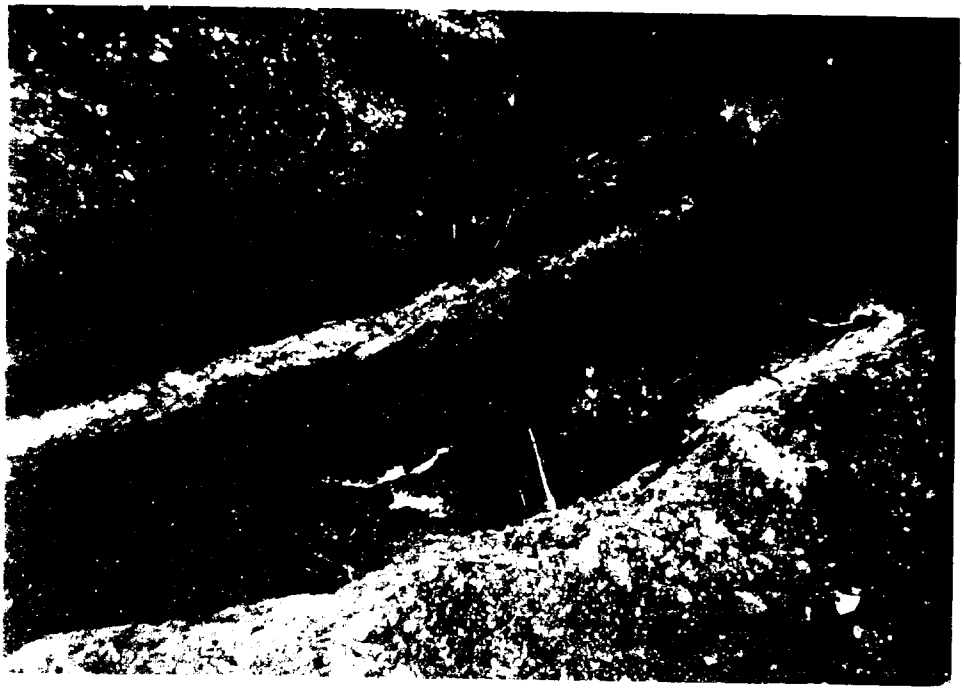
Photograph No. 27 Date: 03/09/92
Location: Trench TT-1 Time: 0900
Description: White lime cake layer at 3 feet; water table at 4 feet in west end of trench TT-1

Photograph No. 28 Date: 03/09/92
Location: Trench TT-6 Time: 1026
Description: One-foot coal layer at depth of 2 feet; photograph shows one gravel layer above brown sand to water table at 5 feet.



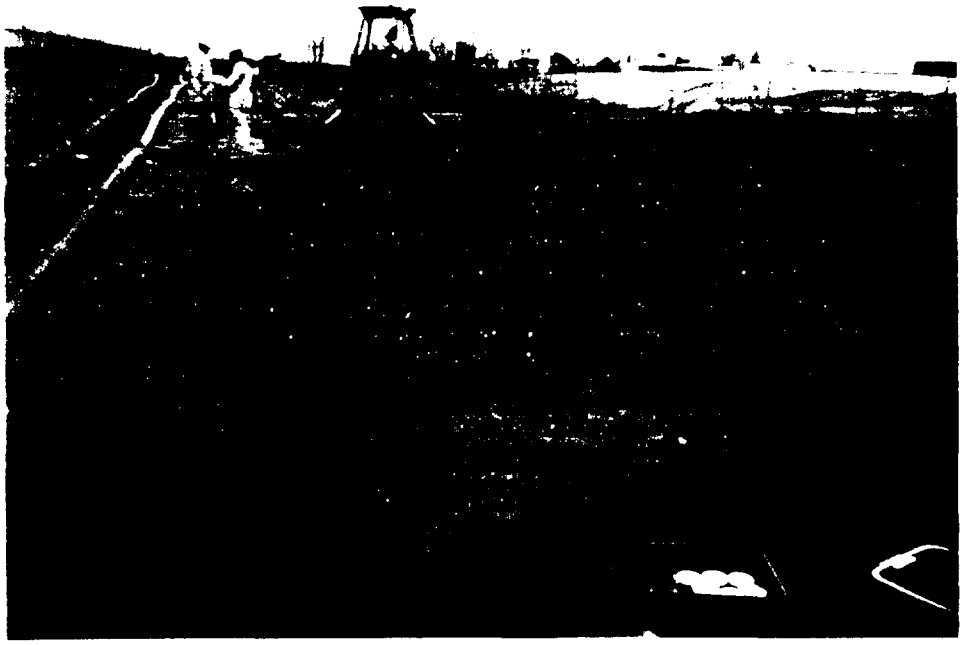
Photograph No. 29
Location: Trench TT-6
Description: Photograph shows grey sand above water table; collocated sample WCP-TS-002 was collected from grey sand; fuel oil odor was observed during sample collection.

Date: 03/09/92
Time: 1225



Photograph No. 30
Location: Trench TT-6, south wall
Description: Coal layer underlain by gravel layer and sand layer; photograph shows oil sheen on water table at 5 feet.

Date: 03/09/92
Time: 1231



Photograph No. 31 Date: 03/09/92
Location: Trench TT-6, looking east Time: 1235
Description: Brown and grey sand and coal layer removed from trench TT-6

Photograph No. 32 Date: 03/10/92
Location: Trench TT-5E, looking east Time: 1125
Description: Trench TT-5E perpendicular to trench TT-5

Photograph No. 33
Location: Trench TT-5E
Description: Photograph shows oil sheen seeping from grey sand at 5 feet

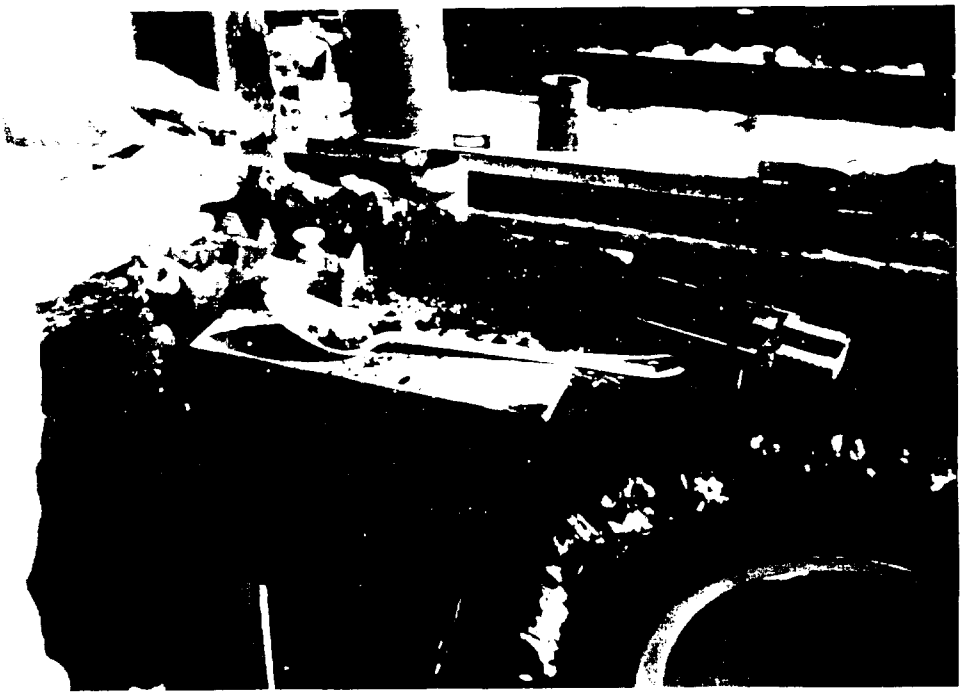
Date: 03/10/92
Time: 1130

Photograph No. 34
Location: Trench TT-5E
Description: Photograph shows grey sand and gravel with oil sheen; fuel oil odor was detected during sample collection.

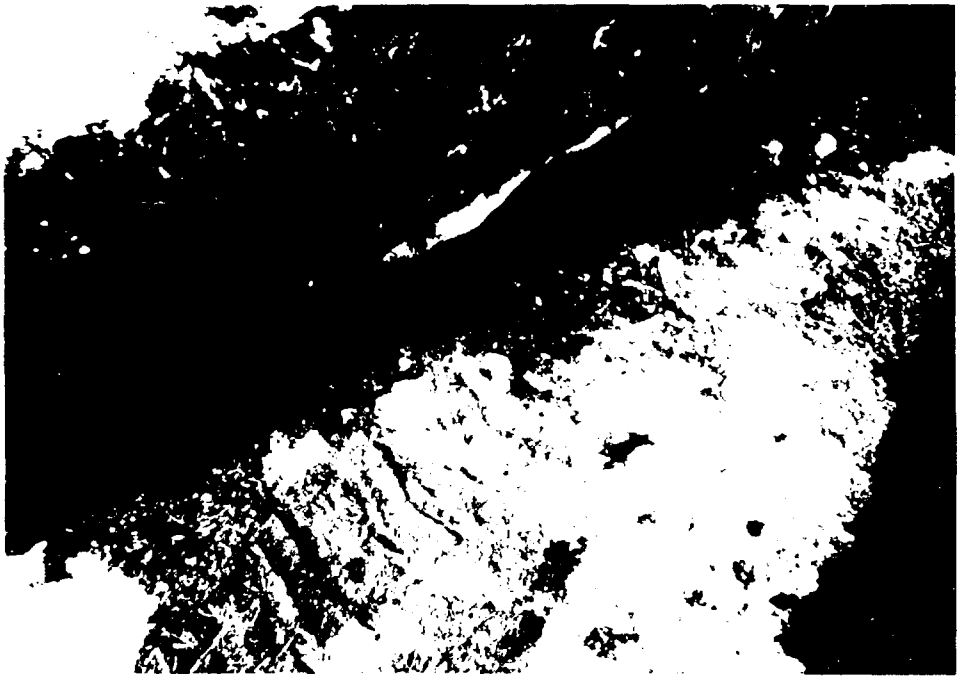
Date: 03/10/92
Time: 1135

Photograph No. 35 Date: 03/10/92
Location: Trench TT-3 Time: 1630
Description: Stainless-steel pipe with oil inside; black sandy soil with oil on water table at 4 feet

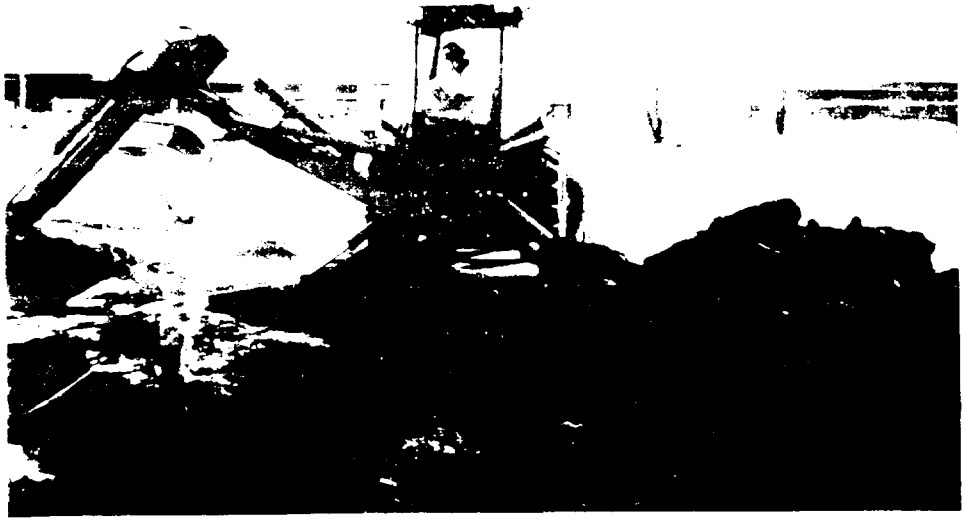
Photograph No. 36 Date: 03/10/92
Location: Trench TT-3, looking south Time: 1630
Description: Sample location for collocated sample WCP-TS-003; sample was a black sand from 3 feet; a slight coal tar odor was observed during sample collection.



Photograph No. 37 Date: 03/11/92
Location: Boring SS-10 Time: 1405
Description: Collocated sample WCP-SS-05 from 2 to 4 feet; photograph shows coal layer underlain by brown sand.



Photograph No. 38 Date: 03/11/92
Location: Trench TT-9 Time: 1515
Description: Coal layer underlain by brown sand

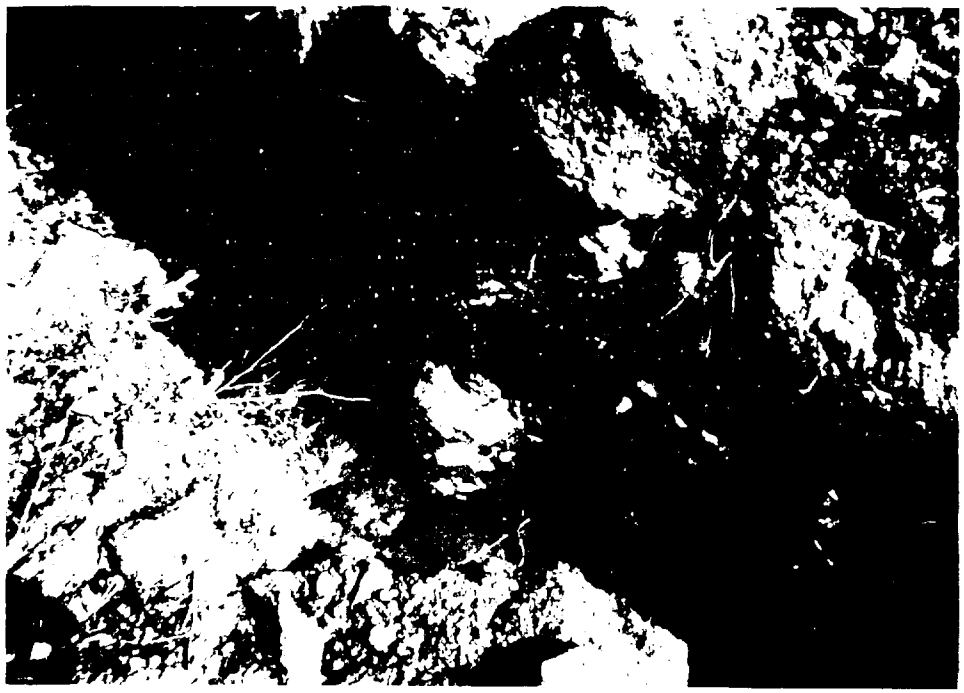


Photograph No. 39
Location: Trench TT-9, looking south
Description: Coal layer and brown sand excavated from trench TT-9

Date: 03/11/92
Time: 1520

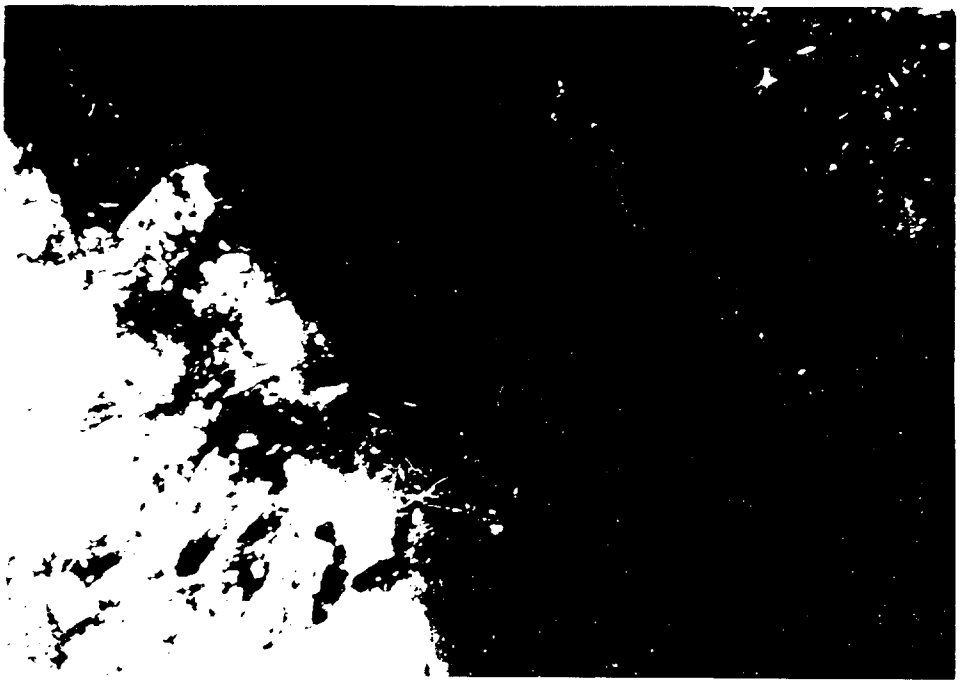
Photograph No. 40
Location: Trench TT-17 looking northeast
Description: Sand and fill material excavated from trench TT-17

Date: 03/12/92
Time: 1400



Photograph No. 41
Location: Trench TT-17
Description: Building foundation in trench TT-17; water table at 5 feet

Date: 03/12/92
Time: 1405



Photograph No. 42
Location: Trench TT-22
Description: Rainbow oil sheen on water table at 3.5 feet

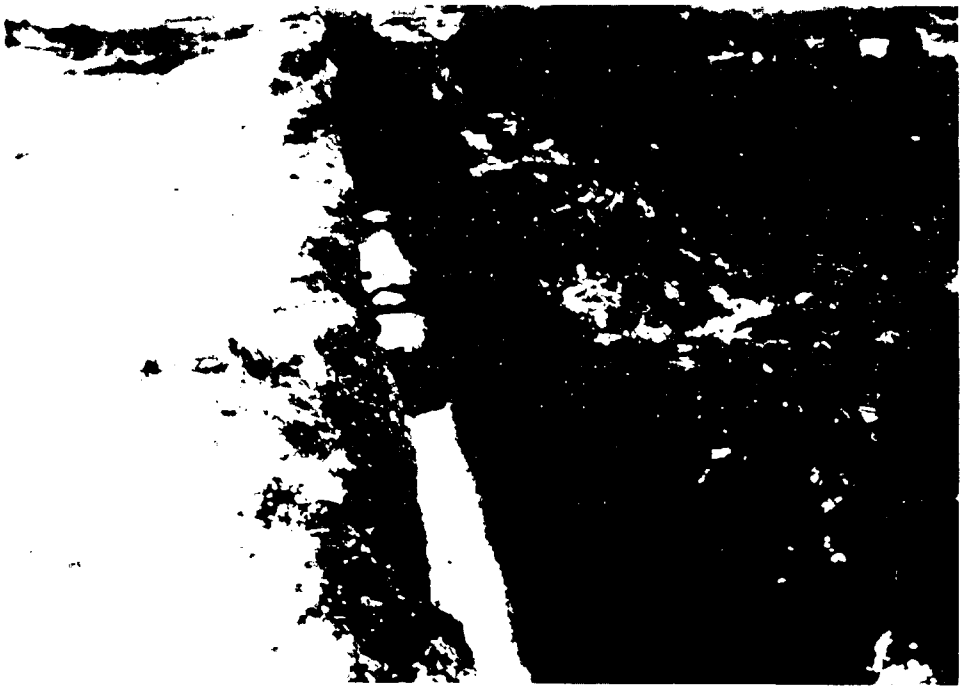
Date: 03/12/92
Time: 1500

Photograph No. 43
Location: Trench TT-22, looking west
Description: Black coal fines excavated from trench TT-22

Date: 03/12/92
Time: 1505

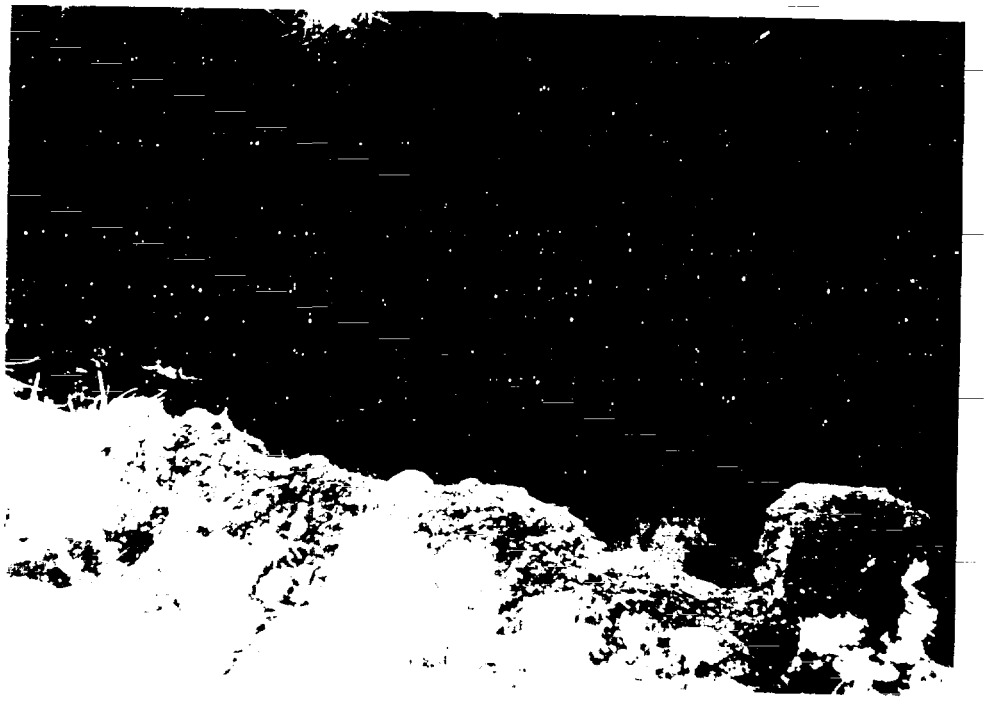
Photograph No. 44
Location: Trench TT-22N, looking south
Description: Photograph shows trench TT-22N perpendicular to trench T-22

Date: 03/12/92
Time: 1540



Photograph No. 45 Date: 03/13/92
Location: Trench TT-3W, looking east Time: 1005
Description: Black and white sediments excavated from trench TT-3W

Photograph No. 46 Date: 03/13/92
Location: Trench TT-3W Time: 1010
Description: Black and white sediments on south wall of trench TT-3W

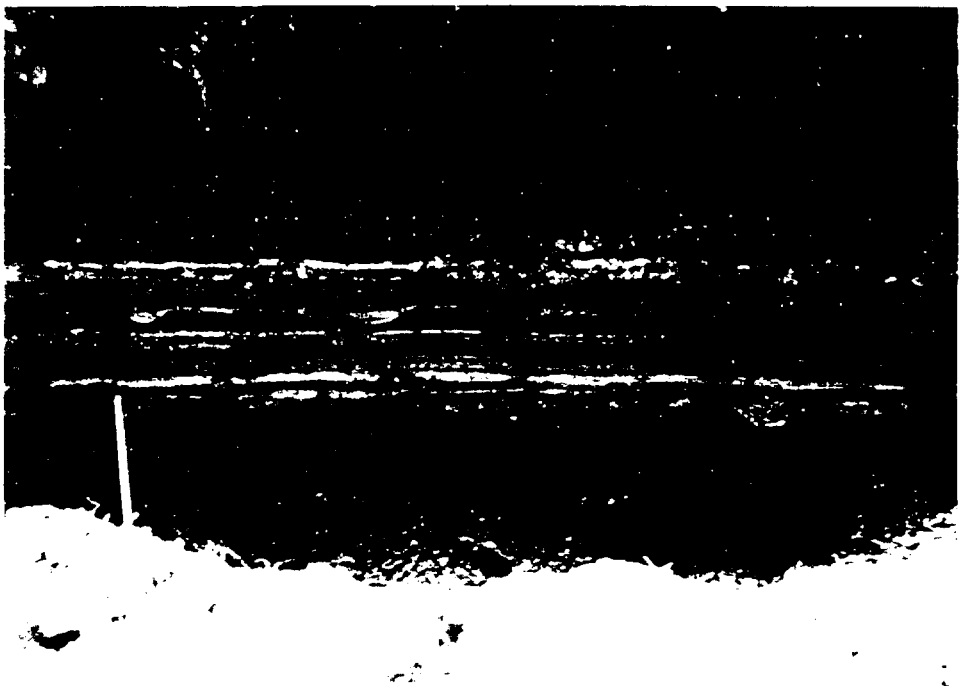


Photograph No. 47
Location: Trench TT-3W
Description: Two oil-saturated layers; one layer is above the black and white sediments and one layer is below sediments.

Date: 03/13/92
Time: 1105

Photograph No. 48
Location: Trench TT-3W, looking west
Description: Backfilling trench TT-3W

Date: 03/13/92
Time: 1405

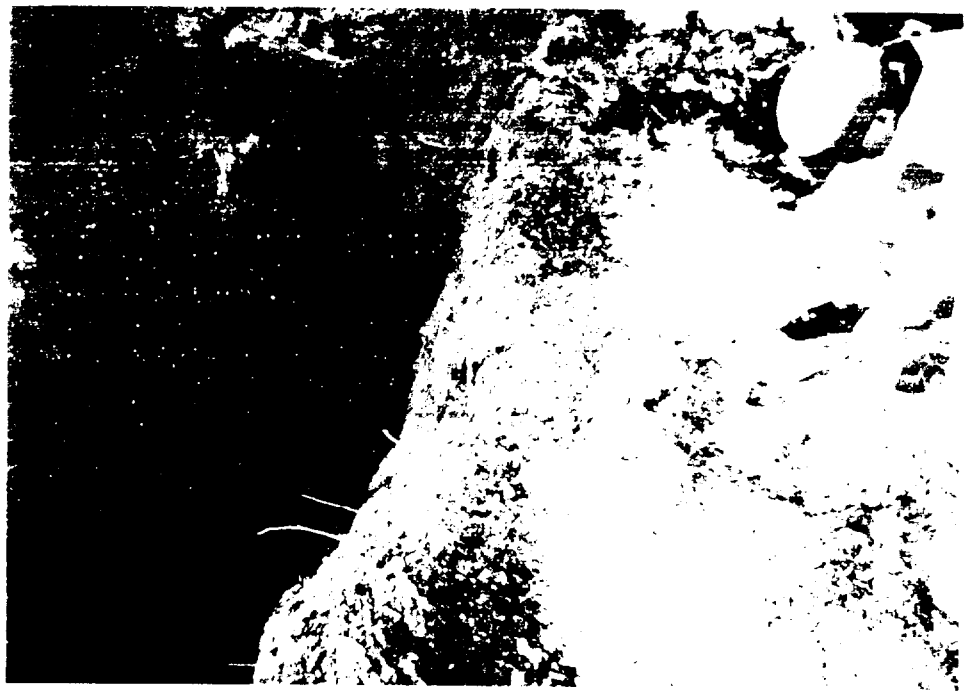


Photograph No. 49
Location: Trench TT-3W
Description: Black and white sediment layers in trench TT-3W

Date: 03/13/92
Time: 1410

Photograph No. 50
Location: Trench TT-21
Description: Building foundation and coal tar in trench TT-21

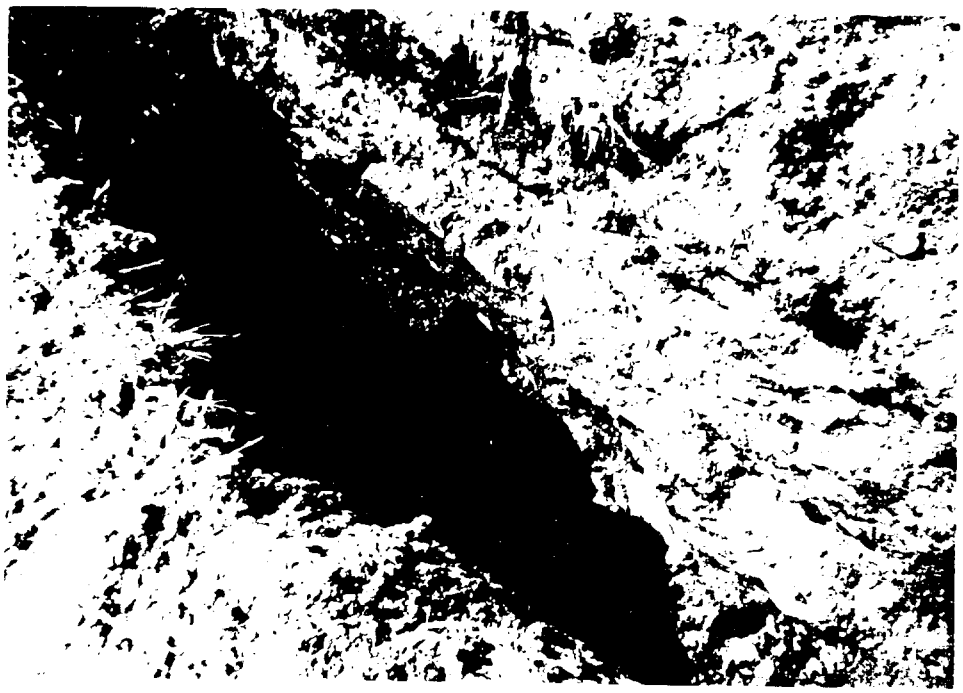
Date: 03/16/92
Time: 1330



Photograph No. 51 Date: 03/16/92
Location: Trench TT-20 Time: 1520
Description: Black coal tar layer in trench TT-20

Photograph No. 52 Date: 03/16/92
Location: Trench TT-20 Time: 1525
Description: Two coal tar layers separated by sand and gravel layers on east wall of trench TT-20

Photograph No. 53 Date: 03/17/92
Location: Trench TT-18, looking west Time: 0937
Description: Photograph shows the building foundation to the left and the tar/oil layer to the right.



Photograph No. 54 Date: 03/17/92
Location: Trench TT-19 Time: 1112
Description: Collocated sample location for WCP-TS-004 and duplicate WCP-TS-004D; photograph shows grey sand.

Photograph No. 55
Location: Trench TT-19, looking south
Description: Fill material excavated from test trench TT-19

Date: 03/17/92
Time: 1114

Photograph No. 56
Location: Trench TT-19
Description: Backhoe bucket of grey sand that collocated samples WCP-TS-004 and WCP-TS-004D were obtained from

Date: 03/17/92
Time: 1115

Photograph No. 57
Location: Trench TT-19W
Description: Barr soil sampling location from trench T-19W

Date: 03/17/92
Time: 1400

Photograph No. 58
Location: Trench TT-19W, looking east
Description: Brown sand and gravel excavated from trench TT-19W

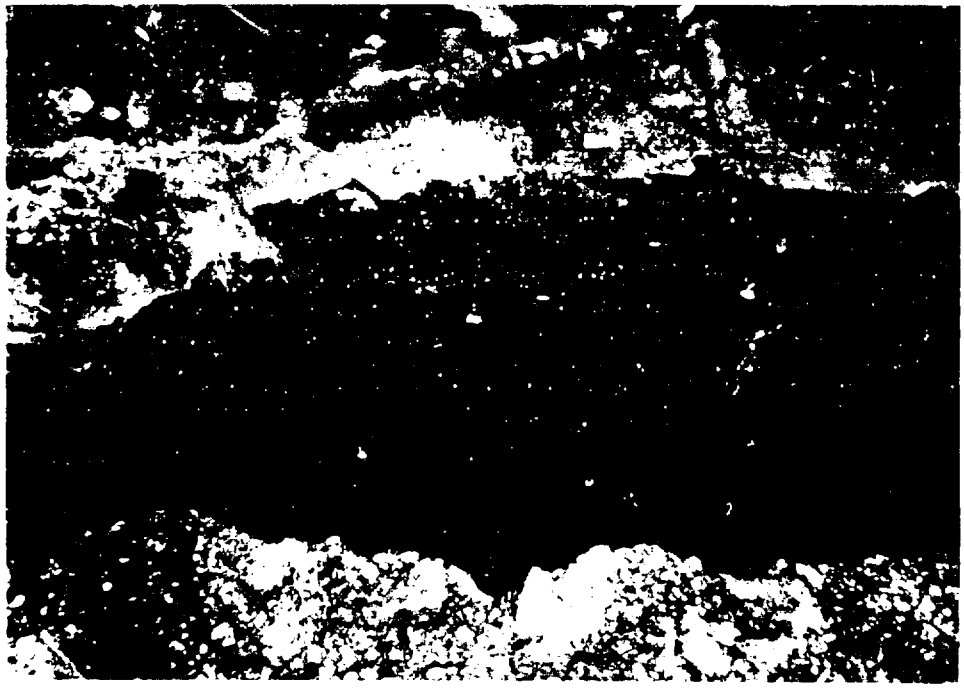
Date: 03/17/92
Time: 1441

Photograph No. 59
Location: Trench TT-15
Description: Grey sand sampled by Barr from trench TT-15

Date: 03/17/92
Time: 1535

Photograph No. 60
Location: Trench TT-15, looking east
Description: Material excavated from trench TT-15

Date: 03/17/92
Time: 1557



Photograph No. 61
Location: Trench TT-14
Description: Black sand brick in north wall of trench TT-14

Date: 03/18/92
Time: 0927

Photograph No. 62
Location: Trench TT-14
Description: Black oil oozing from north wall of trench TT-14 at 4 feet

Date: 03/18/92
Time: 1000

Photograph No. 63
Location: Trench TT-14
Description: Oil saturated sand and bricks removed from trench TT-14

Date: 03/18/92
Time: 1022

Photograph No. 64
Location: Trench TT-14, looking west
Description: Oily sand and brick excavated from trench TT-14

Date: 03/18/92
Time: 1106

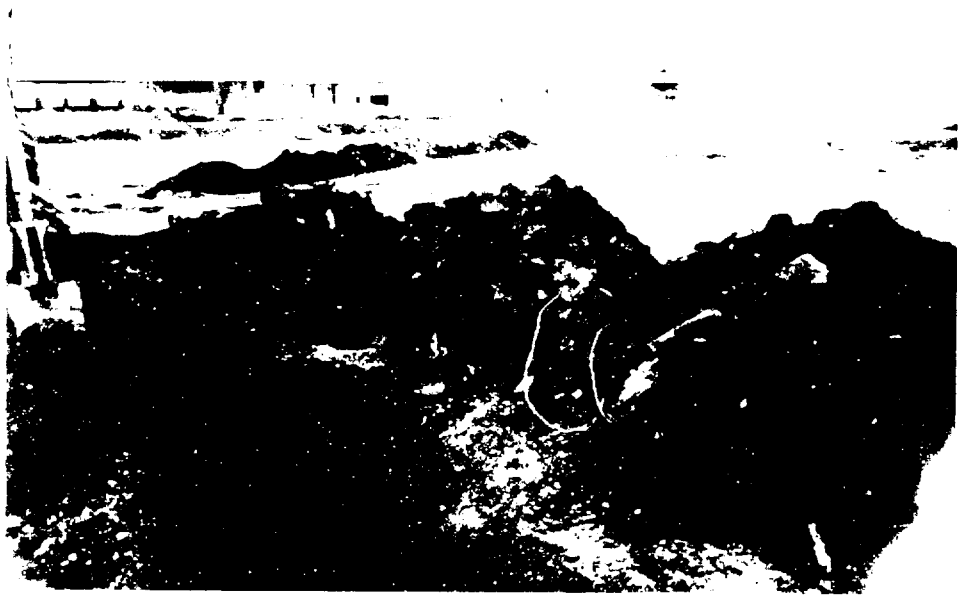
Photograph No. 65 Date: 03/18/92
Location: Trench TT-12 Time: 1430
Description: Eight-inch, stainless-steel pipe excavated from west end of trench TT-12

Photograph No. 66 Date: 03/18/92
Location: Trench TT-12 Time: 1435
Description: Oil-contaminated grey sand from trench TT-12

Photograph No. 67 Date: 03/18/92
Location: Trench TT-12, looking west Time: 1436
Description: Collocated sample WCP-TS-005 obtained from oil-contaminated black sand in trench TT-12

Photograph No. 68
Location: Trench TT-11
Description: Black sand and concrete rubble in trench TT-11

Date: 03/18/92
Time: 1515

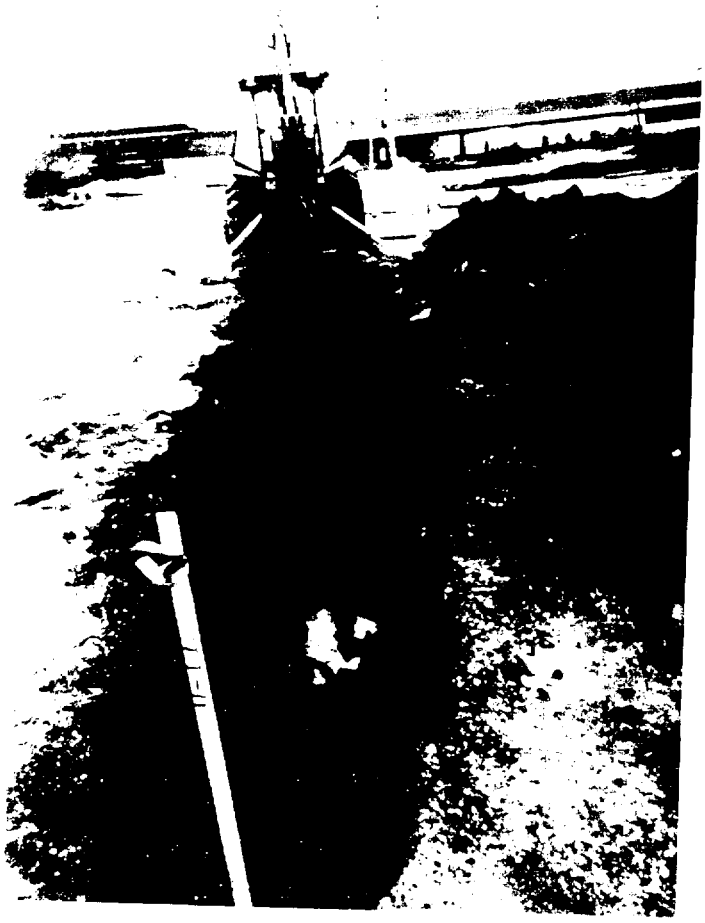


Photograph No. 69
Location: Trench TT-11
Description: Black sand and concrete rubble excavated from trench TT-11

Date: 03/18/92
Time: 1536

Photograph No. 70
Location: Trench TT-11
Description: Barr collecting sample of black sand from bucket

Date: 03/18/92
Time: 1542



Photograph No. 71
Location: Trench TT-11, looking south
Description: Black sand and concrete rubble excavated from trench TT-11

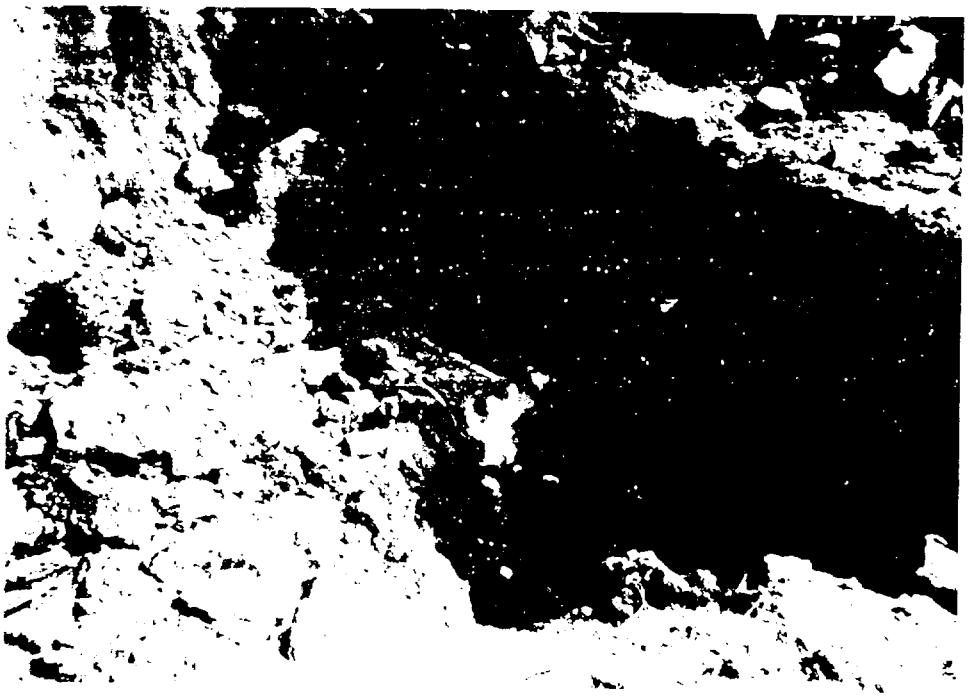
Date: 03/18/92
Time: 1553

Photograph No. 72
Location: Trench TT-23
Description: Tank cover removed from trench TT-23

Date: 03/19/92
Time: 0915

Photograph No. 73
Location: Trench TT-23
Description: Black sand and rubble excavated from trench TT-23

Date: 03/19/92
Time: 0919

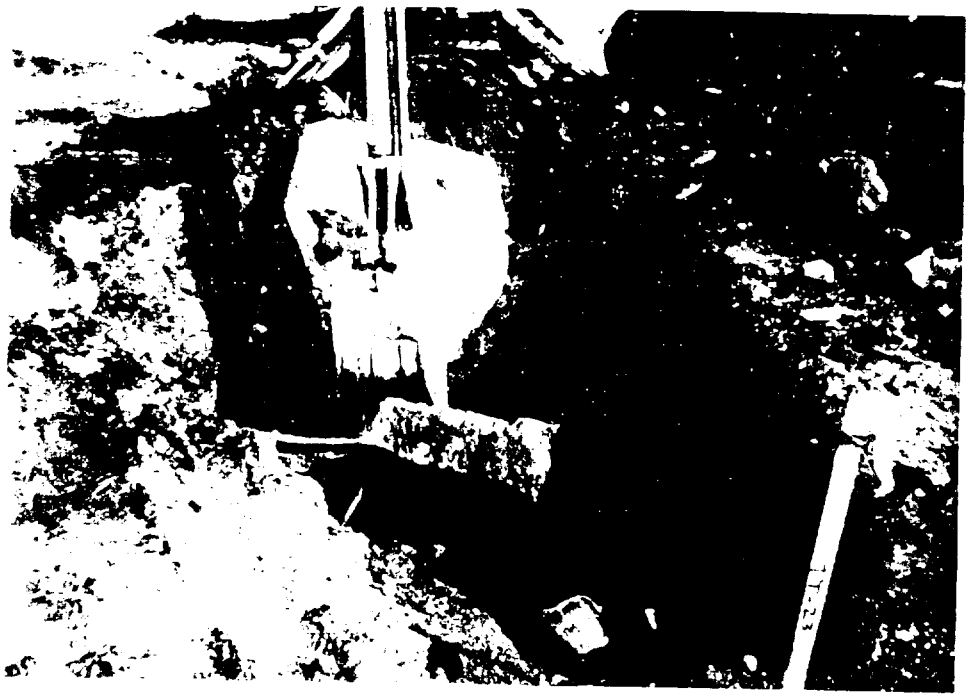


Photograph No. 74
Location: Trench TT-23
Description: Concrete block in trench TT-23

Date: 03-19-92
Time: 0930

Photograph No. 75
Location: Trench TT-23
Description: Concrete rubble in trench TT-23

Date: 03-19-92
Time: 1000



Photograph No. 76
Location: Trench TT-23
Description: Large concrete slabs in trench TT-23

Date: 03/19/92
Time: 1028

Photograph No. 77
Location: Trench TT-23
Description: Barr collecting soil from trench TT-23; gasoline odor was observed during sampling

Date: 03/19/92
Time: 1128

Photograph No. 78
Location: Trench TT-23, looking north
Description: Material excavated from trench TT-23

Date: 03/19/92
Time: 1143

Photograph No. 79
Location: Trench TT-7
Description: White lime cake excavated from trench TT-7

Date: 03/19/92
Time: 1451

Photograph No. 80 Date: 03/19/92
Location: Trench TT-7 Time: 1453
Description: White and black sediments in trench TT-7

Photograph No. 81 Date: 03/19/92
Location: Trench TT-7 Time: 1505
Description: Brown sand with blue deposits; sample collected by Barr.

Photograph No. 82
Location: Trench TT-7
Description: Barr collecting white lime cake stained yellow with sulfur

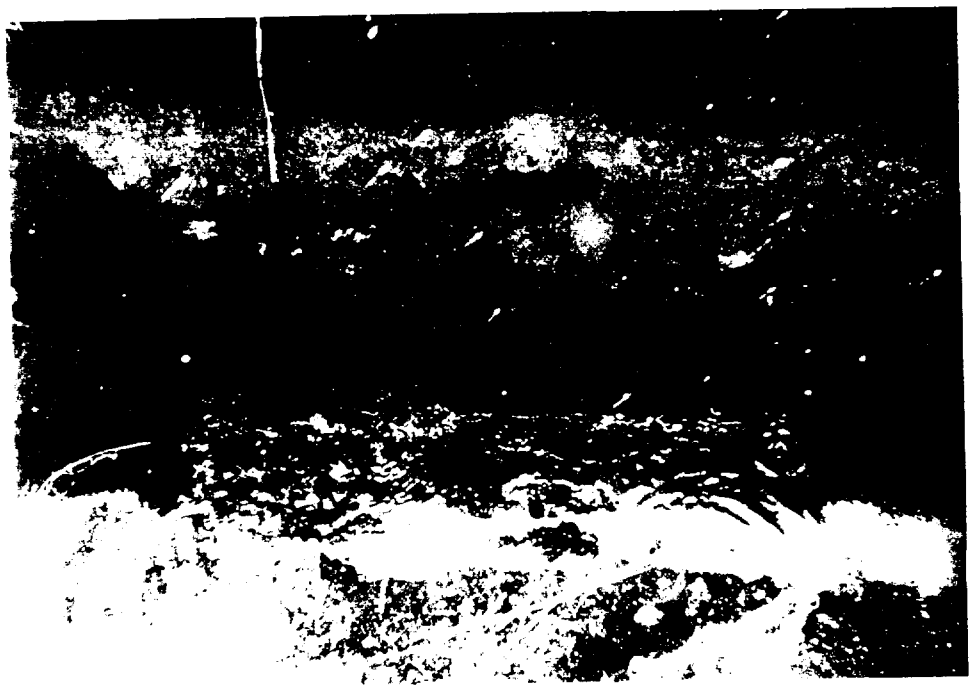
Date: 03/19/92
Time: 1541

Photograph No. 83
Location: Trench TT-7, looking east
Description: Completed trench TT-7, oil sheen on water table at 6 feet

Date: 03/19/92
Time: 1605

Photograph No. 84
Location: Trench TT-19W
Description: Black tar material excavated from trench TT-19W

Date: 03/20/92
Time: 0852



Photograph No. 85
Location: Trench TT-19W
Description: Black tar layer with oil on water table

Date: 03/20/92
Time: 0852

Photograph No. 86
Location: Trench TT-19W
Description: Completed trench TT-19W looking west; oil sheen on water table

Date: 03/20/92
Time: 0956

Photograph No. 87
Location: Trench TT-15
Description: Barr collecting soil samples from trench TT-15 extension

Date: 03/20/92
Time: 1037

Photograph No. 88
Location: Trench TT-15 looking west
Description: Sand excavated from trench TT-15; oil layer on water table

Date: 03/20/92
Time: 1100

Photograph No. 89
Location: Trench TT-10, looking west
Description: Black sand and concrete rubble excavated from trench TT-10

Date: 03/21/92
Time: 0835

Photograph No. 90
Location: Trench TT-10
Description: Black sand and concrete rubble in trench TT-10

Date: 03/21/92
Time: 0840

Photograph No. 91
Location: Trench TT-10 looking east
Description: Completed trench TT-10

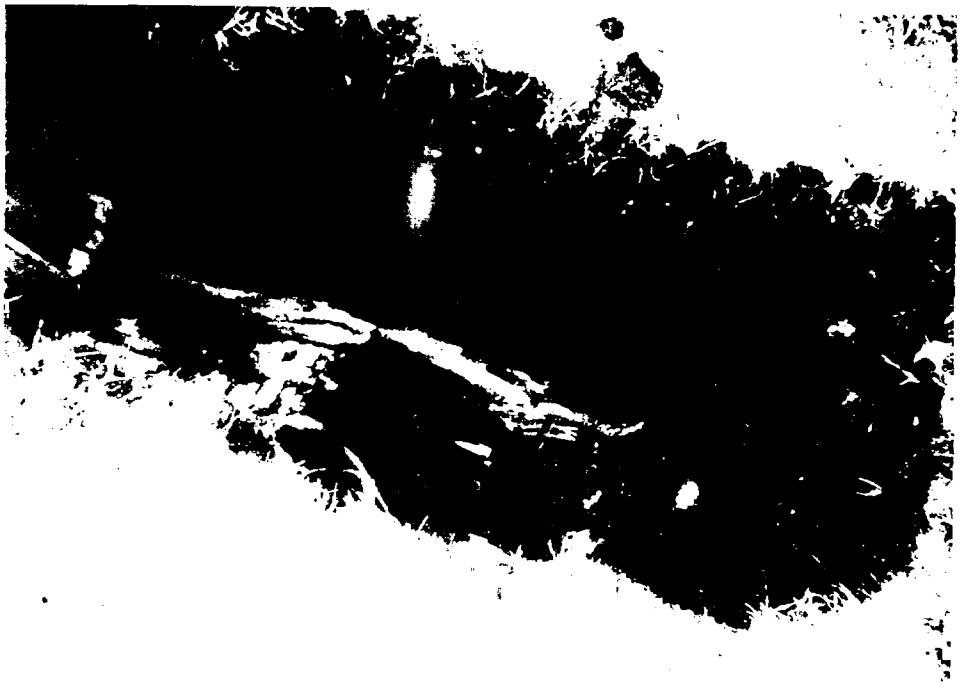
Date: 03/21/92
Time: 0845

Photograph No. 92
Location: Trench TT-8
Description: Black sand and concrete rubble from trench TT-8

Date: 03/21/92
Time: 0915

Photograph No. 93
Location: Trench TT-8
Description: Black sand and concrete rubble on east wall of trench TT-8

Date: 03 21 92
Time: 0920



Photograph No. 94
Location: Trench TT-8A
Description: Black and white sediments at east [illegible] of trench TT-8A

Date: 03 21 92
Time: 0955

Photograph No. 95 Date: 03/21/92
Location: Trench TT-8A Time: 1000
Description: Brown sand with blue deposits underlying white lime cake layer

Photograph No. 96 Date: 03/21/92
Location: Trench TT-8A Time: 1005
Description: Lime cake layer underlain by sand; liquid with oil is seeping from sand.

Photograph No. 97
Location: Trench TT-8A
Description: Black oil floating on water table at 5 feet

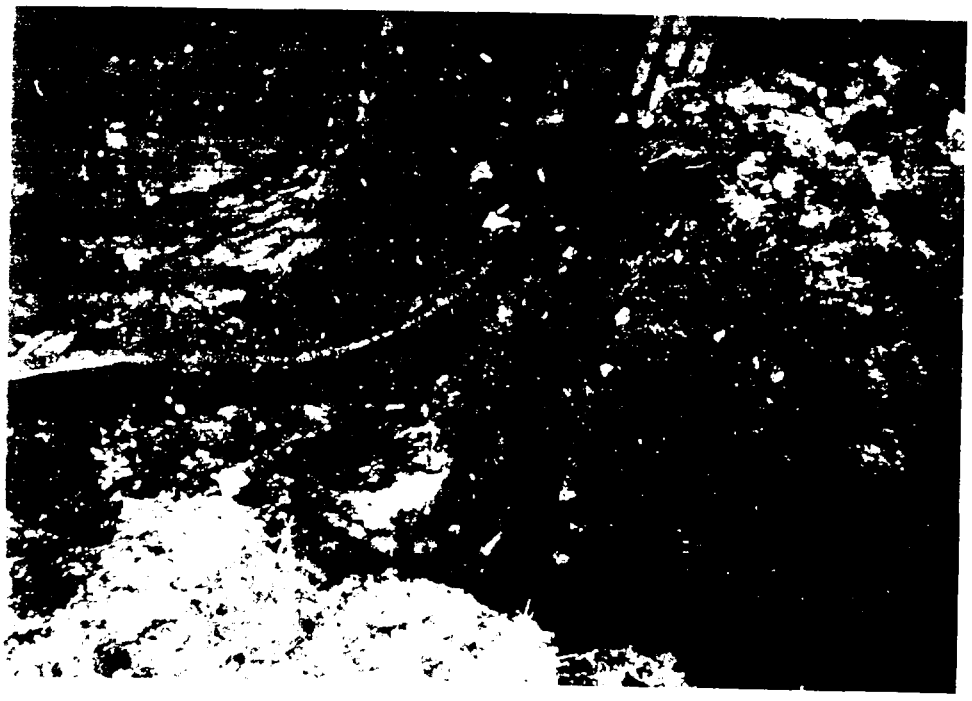
Date: 03/21/92
Time: 1015

Photograph No. 98
Location: Trench TT-8A
Description: Six-inch, stainless-steel pipe in trench TT-8A.

Date: 03/21/92
Time: 1020

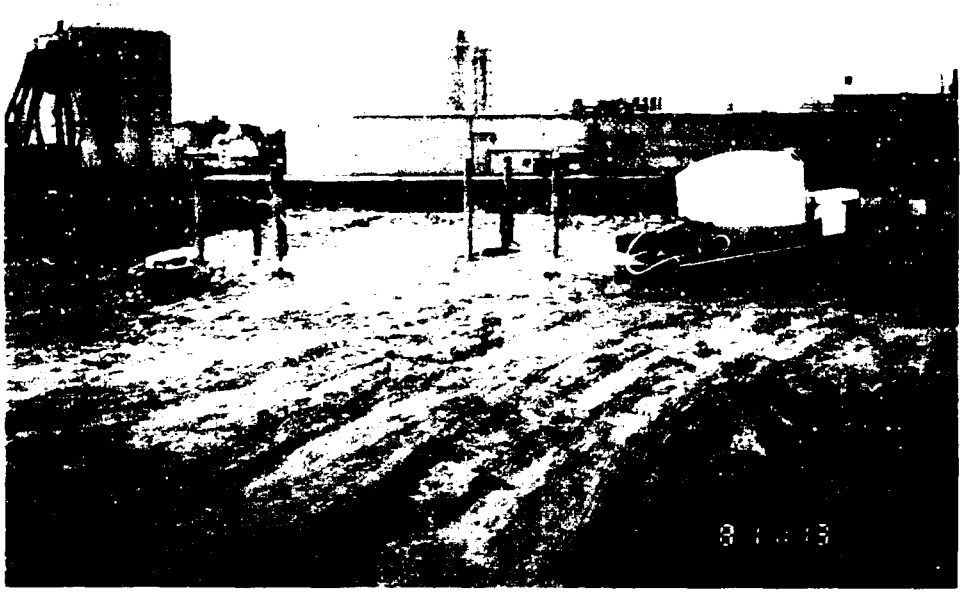
Photograph No. 99 Date: 03/21/92
Location: Trench TT-8A Time: 1030
Description: Black and white material excavated from trench TT-8A

Photograph No. 100 Date: 03/21/92
Location: Trench TT-8A Time: 1040
Description: Photograph shows black sand, white lime cake, and brown sand layers. Collocated sample WCP-TS-006 was collected from brown sand.



Photograph No. 101 Date: 03/21/92
Location: Trench TT-8A Time: 1055
Description: Photograph shows a 4-inch stainless-steel pipe surrounded by oil floating on water table at 5 feet

Photograph No. 102 Date: 04/08/92
Location: Monitoring Wells MS-5S and MW-5D Time: 1107
Description: Barr personnel preparing to purge monitoring well MW-5S (right). White tank (left) is used to containerize purge water for later treatment on site.



Photograph No. 103 Date: 04/08/92
Location: Monitoring Wells MW-5S and MW-5D Time: 1113
Description: Sampling equipment is mobilized at monitoring wells MW-5S (left) and MW-5D (center). Purge water holding tank (right) is inserted in MW-5S. Sample containers are in cooler at far left.

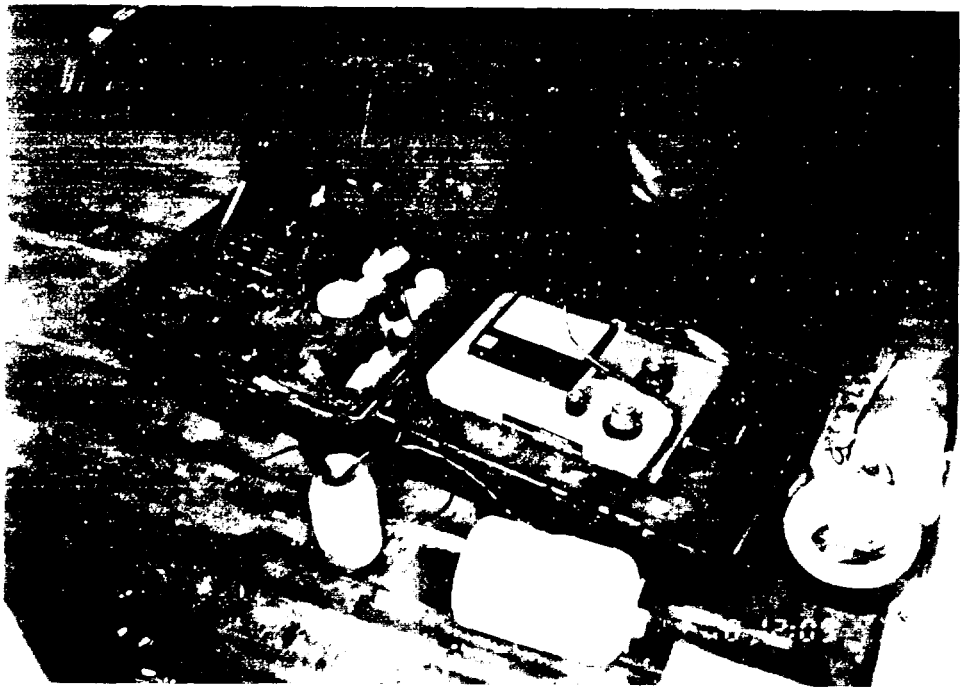
Photograph No. 104 Date: 04/08/92
Location: Monitoring Well MW-5S Time: 1121
Description: Barr personnel inserting stainless-steel bailer into monitoring well MW-5S to begin ground-water sampling. Sample containers are in cooler at right.

Photograph No. 105 Date: 04/08/92
Location: Monitoring Well MW-5S Time: 1123
Description: Barr personnel using 40-milliliter (ml) vials to collect ground water from monitoring well MW-5S for VOC analysis

Photograph No. 106 Date: 04/08/92
Location: Monitoring Well MW-5S Time: 1129
Description: Barr personnel using a 2.5-liter (L) amber jar to collect ground water from monitoring well MW-5S for SVOC analysis

Photograph No. 107 Date: 04/08/92
Location: Monitoring Well MW-5S Time: 1133
Description: Barr personnel using a transfer bottle to collect ground water from monitoring well MW-5S for total metals analysis. Ground-water sample will be transferred into 1-L polyethylene bottles and preserved with nitric acid. Pulley mounted on well casing is used to lower bailer into monitoring well.

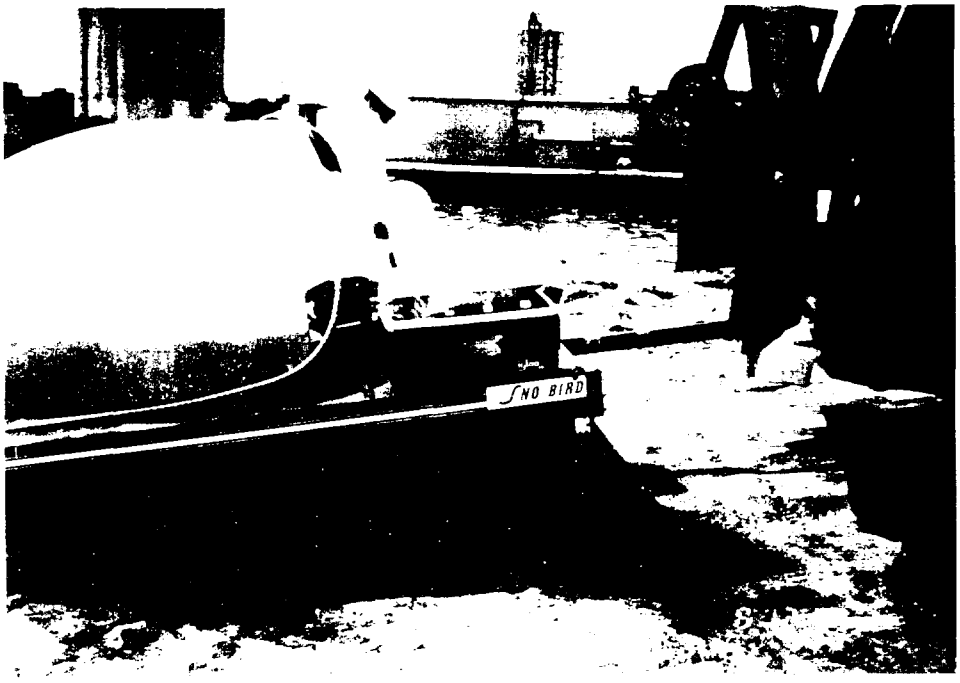
Photograph No. 108 Date: 04/08/92
Location: Monitoring Well MW-5S Time: 1142
Description: Barr personnel at monitoring well MW-5S sampling ground water with a 0.5-gallon polyethylene bottle pre-preserved with sodium hydroxide; ground water will be analyzed for cyanide.



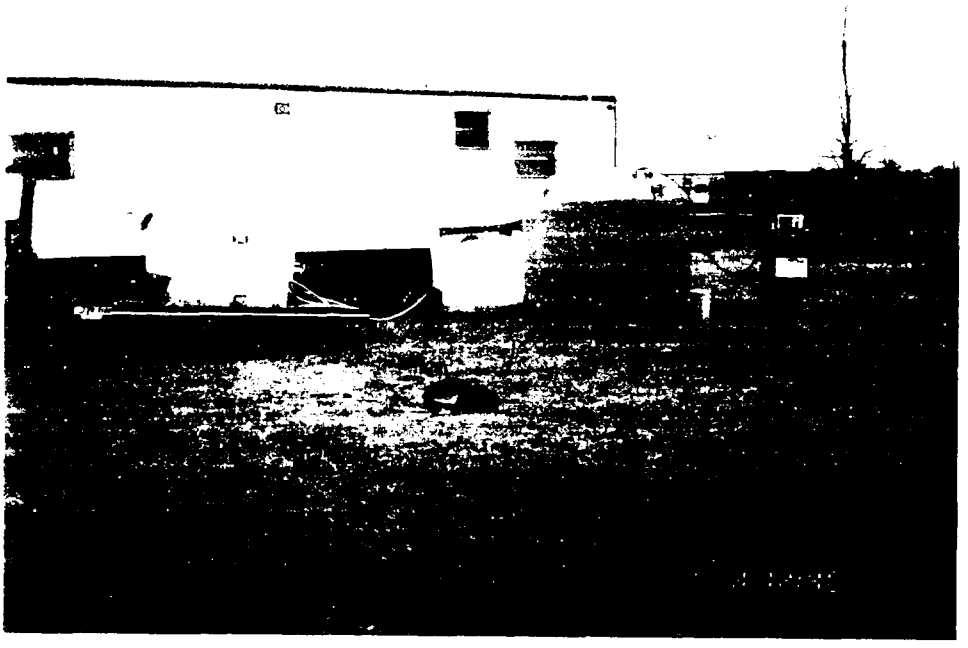
Photograph No. 109 Date: 04/08/92
Location: Monitoring Well MW-5D Time: 1209
Description: Ground water collected from monitoring well MW-5D is screened in field. Probes from the electrical conductivity meter (left), the temperature meter (right), and the pH meter (right) are submerged in ground-water sample in container (left).

Photograph No. 110 Date: 04/08/92
Location: Monitoring Wells MW-5S and MW-5D Time: 1150
Description: Barr personnel transferring ground-water sample from monitoring well MW-5S to filter apparatus. Pump at left creates a vacuum to more efficiently filter ground-water sample. One 1-L polyethylene bottle at right receives filtered sample for total metals analysis.

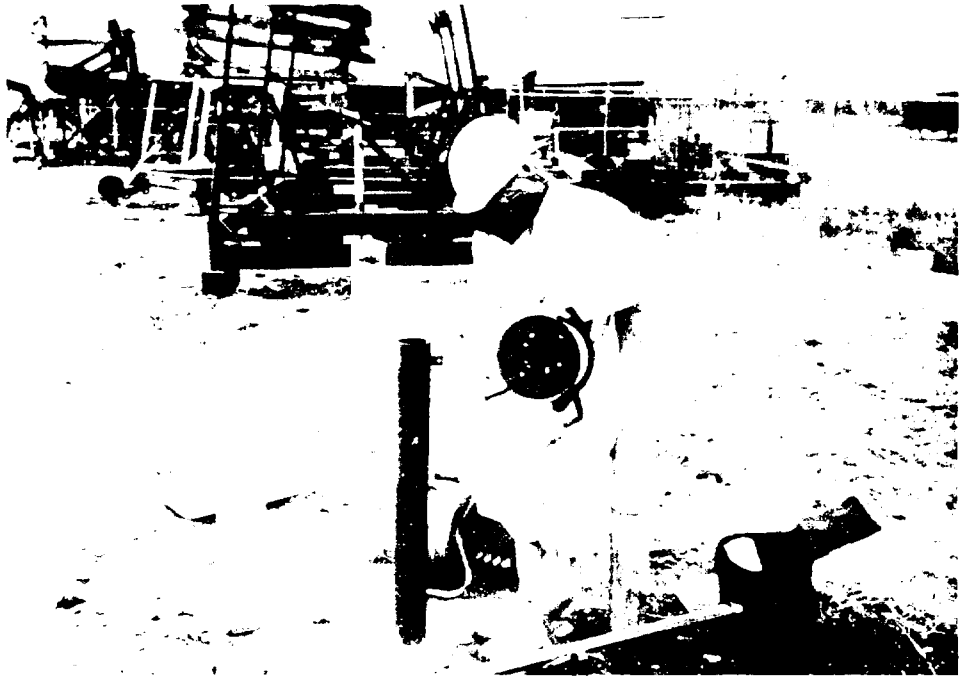
Photograph No. 111 Date: 04/08/92
Location: Monitoring Wells MW-5S and MW-5D Time: 1151
Description: Barr personnel pouring filtered ground-water sample obtained from monitoring well MW-5S; sample is transferred to a 1-L polyethylene bottle preserved with nitric acid.



Photograph No. 112 Date: 04/08/92
Location: Monitoring Wells MW-5S and MW-5D Time: 1214
Description: Sample cooler (center) contains ground-water samples from monitoring wells MW-5S and MW-5D. Ice in bag rests on top of sample containers and prevents complete closure of cooler. Tank (left) contains purge water from monitoring wells MW-5S and MW-5D.



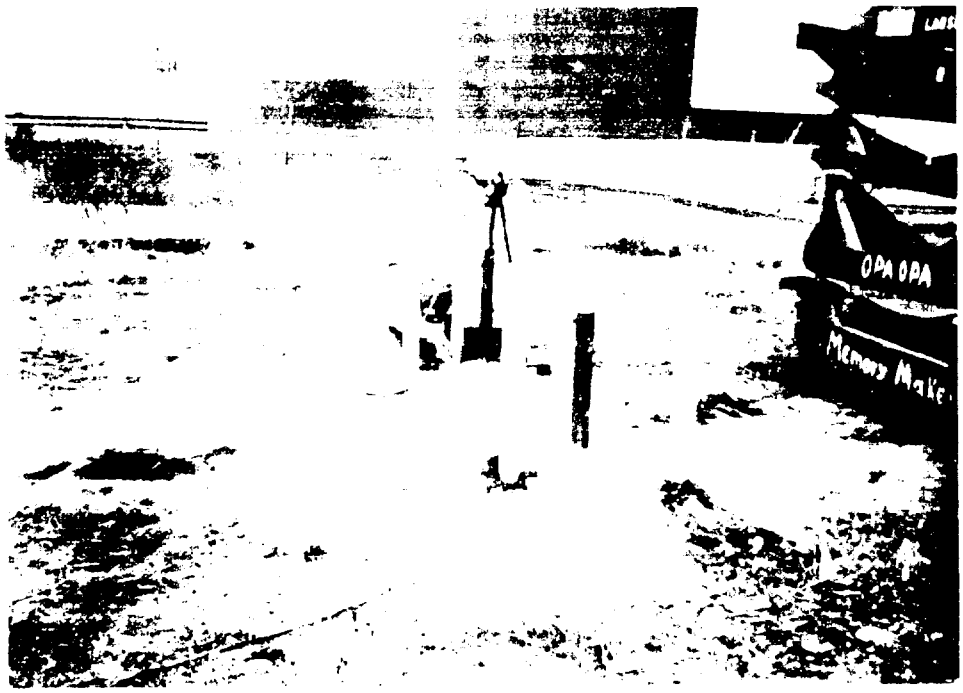
Photograph No. 113 Date: 04/08/92
Location: Barr Project Trailers Time: 1246
Description: Purge water from site monitoring wells is transferred from white tank (left) to white tank on ground (center). Blue container on wooden pallet is granulated activated carbon unit used for purge water treatment.



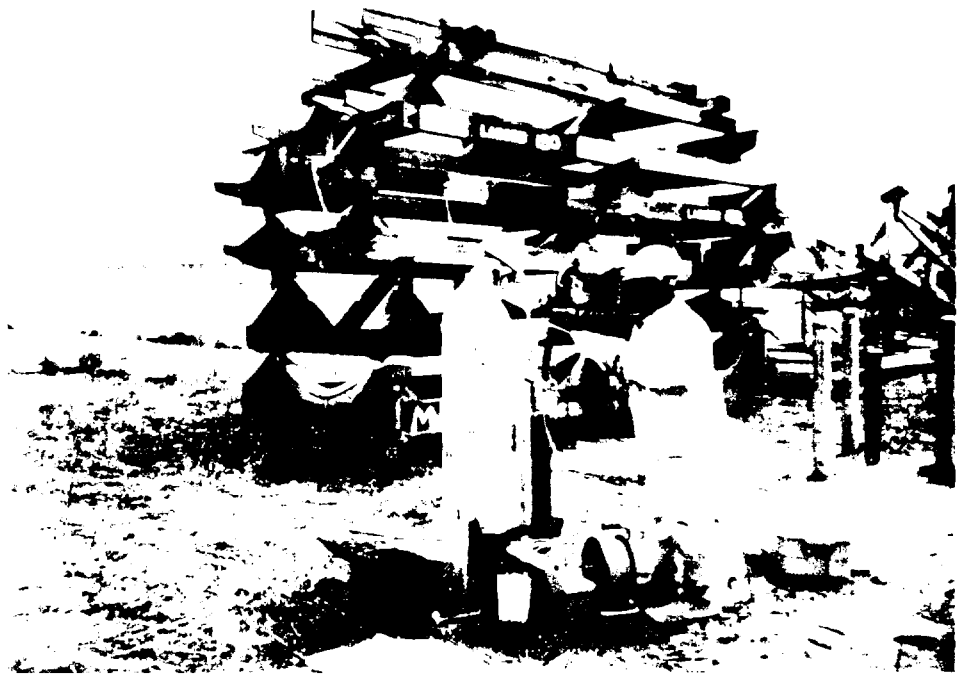
Photograph No. 114 Date: 04/15/92
Location: Monitoring wells MW-3S and MW-3D Time: 1315
Description: Barr personnel using a electronic water level indicator to record ground water levels in monitoring well MW-3S. Five-foot solid PVC slug is at bottom of photograph.

Photograph No. 117 Date: 4-15-92
Location: Monitoring wells MW-3S and MW-3D Time: 1335
Description: Equipment for slug test is mobilized at monitoring well MW-3S. Monitoring well MW-3D is to the right. Yellow cable is In-Situ® pressure transducer. Blue box (center) is In-Situ Hermit® Environmental Data Logger. Electronic water level indicator is to left of Hermit® unit. Blue tub to right of MW-3S is equipment and personnel decontamination station.

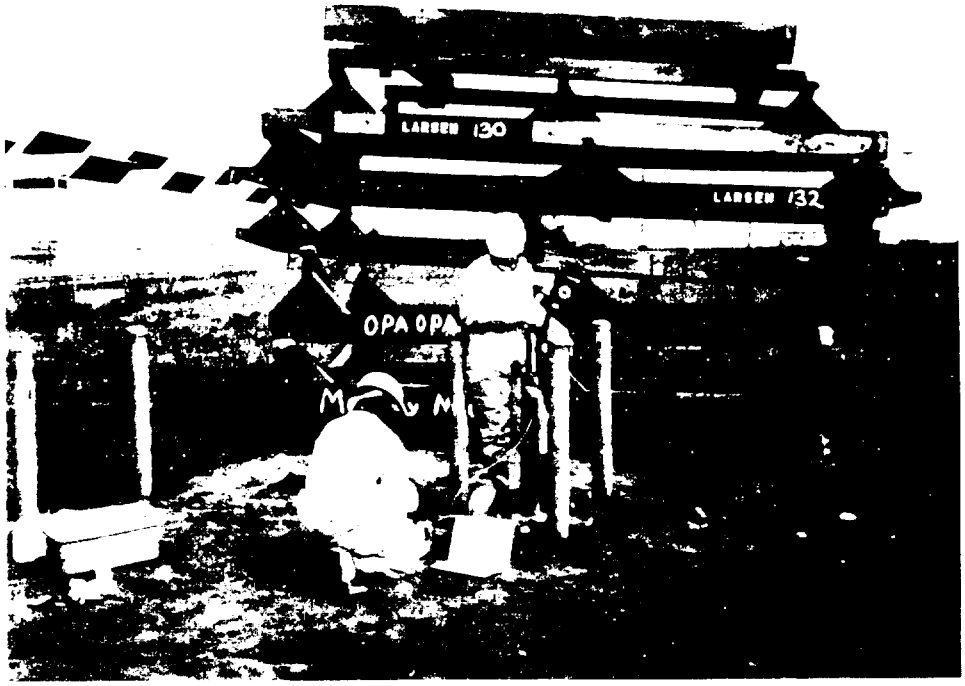
Photograph No. 118 Date: 4-15-92
Location: Monitoring wells MW-3S and MW-3D Time: 1357
Description: Barr personnel decontaminating In-Situ® pressure transducer with deionized water and trisodium phosphate after slug test at monitoring well MW-3S. Five-foot solid PVC slug is resting atop decontamination tub.



Photograph No. 115 Date: 4/15/92
Location: Monitoring wells MW-3S and MW-3D Time: 1320
Description: Barr personnel lowering In-Situ® pressure transdducer into monitoring well MW-3S. Yellow cable connects pressure transducer to Hermit® Environmental Data Logger.



Photograph No. 116 Date: 4/15/92
Location: Monitoring wells MW-3S and MW-3D Time: 1325
Description: Barr personnel lowering 5-foot solid PVC slug into monitoring well MW-3S to begin slug test. Pressure transducer is secured to monitoring well casing with duct tape.



Photograph No. 119 Date: 4/15/92
Location: Monitoring wells MW-3S and MW-3D Time: 1404
Description: Barr personnel lowering 5-foot solid PVC slug into monitoring well MW-3D to begin slug test. Yellow cable is pressure transducer and is taped to well casing. Blue box on ground near Barr employee is Hermit® Environmental Data Logger. Blue tub at far left is equipment and personnel decontamination station. Monitoring well MW-3S is at far left of photograph.

Photograph No. 120 Date: 4/15/92
Location: Monitoring wells MW-3S and MW-3D Time: 1430
Description: Slug test is underway at monitoring well MW-3D. Pressure transducer (yellow cable) is submerged in ground water and is electronically connected to Hermit® unit in lower center of photograph. Equipment and personnel decontamination station is in lower left. Electronic water level indicator is lowered into ground water at monitoring well MW-3S at lower left corner of photograph.